

STATE OF UTAH
DIVISION OF WATER QUALITY
DEPARTMENT OF ENVIRONMENTAL QUALITY
SALT LAKE CITY, UTAH

UTAH POLLUTANT DISCHARGE ELIMINATION SYSTEM (UPDES) PERMITS

Major Municipal Permit No. **UT0024392**
Biosolids Permit No. **UTL0024392**
Storm Water Permit No. **UTR024392**

In compliance with provisions of the Utah *Water Quality Act, Title 19, Chapter 5, Utah Code Annotated ("UCA") 1953, as amended* (the "Act"),

CENTRAL VALLEY WATER RECLAMATION FACILITY

is hereby authorized to discharge from its wastewater treatment facility to receiving waters named **Mill Creek**,

to dispose of biosolids,

and to discharge storm water,

and to distribute effluent for reuse,

in accordance with specific limitations, outfalls, and other conditions set forth herein.

This **modified** permit shall become effective on January 3, 2020.

This permit expires at midnight on December 31, 2021.

Signed this 3rd day of January, 2020.



Erica Brown Gaddis, PhD Director
Utah Division of Water Quality

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I. DISCHARGE LIMITATIONS AND REPORTING REQUIREMENTS

- A. Description of Discharge Points. The authorization to discharge wastewater provided under this part is limited to those outfalls specifically designated below as discharge locations. Discharges at any location not authorized under a UPDES permit are violations of the *Act* and may be subject to penalties under the *Act*. Knowingly discharging from an unauthorized location or failing to report an unauthorized discharge may be subject to criminal penalties as provided under the *Act*.

<u>Outfall Number</u>	<u>Location of Discharge Outfall</u>
001	Outfall 001 is a large concrete channel which discharges directly to Mill Creek, and is located immediately on the northwest side of the treatment plant at about latitude 40°42'31" and longitude 111°54'57", approximately 800 West and 3400 South in South Salt Lake City, Salt Lake County, Utah.
001R	Reuse Outfall 001R is approximately located at latitude 40°42'31" and longitude 111°54'57". The discharge is through a pipe to the west pond on the Central Valley Golf Course. The water is then used to irrigate the golf course.

- B. Narrative Standard. It shall be unlawful, and a violation of this permit, for the permittee to discharge or place any waste or other substance in such a way as will be or may become offensive such as unnatural deposits, floating debris, oil, scum, or other nuisances such as color, odor or taste, or cause conditions which produce undesirable aquatic life or which produce objectionable tastes in edible aquatic organisms; or result in concentrations or combinations of substances which produce undesirable physiological responses in desirable resident fish, or other desirable aquatic life, or undesirable human health effects, as determined by a bioassay or other tests performed in accordance with standard procedures.

C. Specific Limitations and Self-Monitoring Requirements.

1. Effective immediately, and lasting through the life of this permit, there shall be no acute or chronic toxicity in Outfalls 001 and 001R as defined in *Part VIII*, and determined by test procedures described in *Part I. C.4.a & b* of this permit.
2.
 - a. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from Outfall 001. Such discharges shall be limited and monitored by the permittee as specified below:

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Outfall 001 Effluent Limitations					
Parameter	Concentration				Mass (Lbs.)
	Average Monthly	Average Weekly	Minimum Daily	Maximum Daily	Average Monthly
CBOD ₅ , mg/L					
Summer (Jul-Sep)	16	27	-	-	300,240
Fall (Oct-Dec)	20	28	-	-	375,300
Winter (Jan-Mar)	20	28	-	-	375,300
Spring (Apr-Jun)	20	28	-	-	375,300
BOD ₅ Min. % Removal	85	-	-	-	-
TSS, mg/L	25	35	-	-	-
TSS Min. % Removal	85	-	-	-	-
<i>E. coli</i> , No/100mL	126	157	-	-	-
pH, Standard Units	-	-	6.5	9	-
Ammonia (as N), mg/L					
Summer (Jul-Sep)	3.7	-	-	13.1, *e	69,431
October	4.5	-	-	15.9	84,443
November -December	5.9	-	-	15.9	110,714
Winter (Jan - Mar)	5.8, *e	-	-	12.3	108,837
Spring (Apr-Jun)	5.3	-	-	15.9	99,455
DO, mg/L	-	-	5	-	
WET *q					
Acute Biomonitoring	-	-	-	LC ₅₀ > 100% Effluent	-
WET, *p, *q					
Chronic Biomonitoring	-	-	-	IC ₂₅ >RWC	-
Summer (Jul-Sep)	-	-	-	92% Eff.	-
Fall (Oct-Dec)	-	-	-	95% Eff.	-
Winter (Jan-Mar)	-	-	-	94% Eff.	-
Spring (Apr-Jun)	-	-	-	89% Eff.	-
Oil & Grease, mg/L (when sheen observed)	-	-	-	10	-
Total Copper, mg/L	0.0233	-	-	-	437.2
TBPEL Rule					
Parameter	Concentration				
	Average Monthly	Average Weekly	Minimum Daily	Maximum Daily	Average Annual
Interim Limits ¹					
Total Phosphorous, mg/L	-	-	-	-	4.0
Final Limits ²					
Total Phosphorous, mg/L	-	-	-	-	1.0

¹ TBPEL of 4.0 mg/L goes into effect on January 1, 2020

² The final phosphorus limit goes into effect on January 1, 2025.

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Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
Total Flow *b, *c	Continuous	Recorder	MGD
CBOD ₅ , Influent *d	4 x Weekly	Composite	mg/L, lbs.
Effluent	4 x Weekly	Composite	mg/L, lbs.
TSS, Influent *d	4 x Weekly	Composite	mg/L
Effluent	4 x Weekly	Composite	mg/L
<i>E. coli</i>	4 x Weekly	Grab	No./100mL
pH	Daily	Grab	SU
Ammonia	4 x Weekly	Grab	mg/L, lbs.
DO	Daily	Grab	mg/L
WET – Biomonitoring *q			
Ceriodaphnia - Acute	1 st , & 3 rd Quarter	Composite	Pass/Fail
Ceriodaphnia - Chronic	Quarterly	Composite	Pass/Fail
Fathead Minnows - Acute	2 nd & 4 th Quarter	Composite	Pass/Fail
Fathead Minnows - Chronic	Quarterly	Composite	Pass/Fail
Oil & Grease *f	When Sheen Observed	Grab	mg/L
Orthophosphate, (as P) *g			
Effluent	Monthly	Composite	mg/L
Total Ammonia (as N) *g	Monthly	Composite	mg/L
Phosphorus, Total *g			
Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Total Kjeldahl Nitrogen, TKN (as N) *g			
Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Nitrate, NO ₃ *g	Monthly	Composite	mg/L
Nitrite, NO ₂ *g	Monthly	Composite	mg/L
Cyanide *h, Influent *d	6 X Yearly	Composite	mg/L
Effluent	Monthly* ⁿ	Composite	mg/L
Copper	Monthly * ⁿ	Composite	mg/L, lbs.
Selenium	Monthly * ⁿ	Composite	mg/L
Mercury	Monthly * ⁿ	Composite/Grab	mg/L
Metals *h, Influent *d	6 X Yearly	Composite	mg/L
Effluent	6 X Yearly	Composite	mg/L
Organic Toxics	2 X Yearly * ^o	Grab	mg/L

*a See Definitions, *Part VIII*, for definition of terms.

*b Flow is not a pollutant; it is in the permit to help determine loading levels. Flow measurements of influent/effluent volume shall be made in such a manner that the

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- permittee can affirmatively demonstrate that representative values are being obtained.
- *c If the rate of discharge is controlled, the rate and duration of discharge shall be reported.
 - *d In addition to monitoring the final discharge, influent samples shall be taken and analyzed for this constituent at the same frequency as required for this constituent in the discharge.
 - *e The chronic ammonia limit for October, and the acute ammonia limit for the Summer are from the Jordan River POTW WLA and are based on protection of downstream uses
 - *f Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report NA.
 - *g These reflect changes and additions required with the adoption of UCA R317-1-3.3, Technology-based Phosphorus Effluent Limits rule. The rule requires that all monitoring shall be based on 24-hour composite samples by use of an automatic sampler or a minimum of four grab samples collected a minimum of two hours apart. This collection method is only for the monthly samples being collected in compliance with the rule.
 - *h Pretreatment requirements for metals monitoring have changed. As a result the minimum frequency is now six (6) times per year, or at least once every two (2) months. The metals sampling for pretreatment must be done in January - February, March - April, May - June, July - August, September - October, and November - December each year
 - *n An RP Analysis was run on metals using data as described above. This resulted in the need for increased monitoring, or improved reporting levels for mercury, selenium and cyanide, along with new limits for copper. These reflect the changes.
 - *o The organic toxics must be sampled during the months of January - June and July - December each year. The toxic pollutants are listed in *40 CFR 122 Appendix D Table II (Organic Toxic Pollutants)*.
 - *p Receiving Water Concentration (RWC) refers to the target receiving water concentration for the chronic WET test.
 - *q Failure of an individual WET test does not constitute a violation of the permit, so long as an investigation is initiated in accordance with the permit. If an alternate species is approved for WET testing, the permit will be modified accordingly without a public comment period.

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- b. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from Outfall 001R. Such discharges shall be limited and monitored by the permittee as specified below:

Parameter	Outfall 001R Effluent Limitations *a, *l, *m				
	Max Monthly Average	Max Weekly Median	Max Daily Average	Minimum	Maximum
Turbidity, NTU *l	-	-	2	-	5
TRC, mg/L *e, *m	-	-	-	1	-
BOD ₅ , mg/L	10	-	-	-	-
<i>E. coli</i> , No/100mL *k	-	0	-	-	9
pH, Standard Units	-	-	-	6.0	9.0

Reuse Outfall 001R Self-Monitoring and Reporting Requirements *a *j			
Parameter	Frequency	Sample Type	Units
Total Flow, *b, *c	Continuous	Recorder	MGD
Turbidity	Continuous	Recorder	mg/L
TRC *i *m	Daily	Recorder	mg/L
BOD ₅	Weekly	Composite	mg/L
<i>E. coli</i> *k	Daily	Grab	No./100mL
pH	Daily	Grab	SU

- *a See Definitions, *Part VIII*, for definition of terms.
- *b Flow measurements of influent/effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained.
- *c If the rate of discharge is controlled, the rate and duration of discharge shall be reported.
- *i Residual is recommended but no longer required. Sampling not required if chlorination is not being used. The total residual chlorine shall be measured continuously and shall at no time be less than 1.0 mg/l after 30 minutes contact time at peak flow. A 1 mg/l total chlorine residual is recommended after disinfection and before the treated effluent goes into the distribution system.
- *j Reuse monitoring results obtained during the previous month for reuse discharges shall be summarized for each month and reported on a Monthly Operational Report, submitted no later than the 28th day of the month following the completed reporting period.
- *k The weekly median *E. coli* concentration shall be non-detect

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- *l An alternative disposal option or diversion to storage must be automatically activated if turbidity exceeds the maximum instantaneous limit for more than 5 minutes, or chlorine residual drops below the instantaneous required value for more than 5 minutes, where chlorine disinfection is used.
- *m The facility is required to disinfect to destroy, inactivate or remove pathogenic microorganisms by chemical, physical or biological means. Disinfection may be accomplished by chlorination, ozonation, or other chemical disinfectants, UV radiation or other approved processes.

3. Compliance Schedule

- a. There is currently no compliance schedule for this permit.

4. Acute/Chronic Whole Effluent Toxicity (WET) Testing.

- a. *Whole Effluent Testing – Acute Toxicity.* Starting immediately, the permittee shall conduct quarterly acute static replacement toxicity tests on a composite sample of the final effluent. The sample shall be collected at outfall 001.

The monitoring frequency for acute tests shall be quarterly unless a sample is found to be acutely toxic during a routine test. If that occurs, the monitoring frequency shall become weekly (See *Part I.C.4.c, Accelerated Testing*). Samples shall be collected on a two day progression; i.e., if the first sample is on a Monday, during the next sampling period, the sampling shall begin on a Wednesday, etc.

The replacement static acute toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, 5th Edition, (EPA 821/R/02/012), October 2002*, as per *40 CFR 136.3(a) TABLE 1A-LIST OF APPROVED BIOLOGICAL METHODS*. The permittee shall conduct the 48-hour static replacement toxicity test using *Ceriodaphnia dubia* (water flea) and the acute 96-hour static replacement toxicity test using *Pimephales promelas* (fathead minnow). A CO₂ atmosphere may be used (in conjunction with an unmodified test) in order to account for artificial pH drift, as previously demonstrated to and authorized by the Director.

Acute toxicity occurs when 50 percent or more mortality is observed for either species at any effluent concentration (lethal concentration or LC₅₀). Mortality in the control must simultaneously be 10 percent or less for the results to be considered valid. If more than 10 percent control mortality occurs, the test shall be repeated until satisfactory control mortality is achieved. If the permit contains a total residual chlorine limitation greater than 0.20 mg/L, the

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permittee may request from the Director approval to de-chlorinate the sample, or collect the sample prior to chlorination.

Quarterly test results shall be reported along with the Discharge Monitoring Report (DMR) submitted for the end of the reporting calendar quarter e.g., biomonitoring results for the calendar quarter ending March 31 shall be reported with the DMR due April 28, with the remaining biomonitoring reports submitted with DMRs due each July 28, October 28, and January 28). All test results shall be reported along with the DMR submitted for that reporting period. The format for the report shall be consistent with the latest revision of the *Region VIII Guidance for Acute Whole Effluent Reporting*, and shall include all chemical and physical data as specified.

If the results for a minimum of ten consecutive tests indicate no acute toxicity, the permittee may request a reduction in testing frequency and/or reduction to one species. The Director may approve, partially approve, or deny the request based on results and other available information. If approval is given, the modification will take place without a public notice.

- b. *Whole Effluent Testing – Chronic Toxicity.* Starting immediately, the permittee shall quarterly conduct chronic short-term toxicity tests on a composite sample of the final effluent. The sample shall be collected at outfall 001.

The monitoring frequency shall be quarterly. Samples shall be collected on a two-day progression; i.e., if the first sample is on a Monday, during the next sampling period, sampling shall be on a Wednesday. If chronic toxicity is detected, the test shall be repeated in less than four weeks from the date the initial sample was taken. The need for any additional samples, and/or a Toxicity Reduction Evaluation (TRE), see *Part I.C.4.f*, shall be determined by the Director. If the second test shows no chronic toxicity, routine monitoring shall be resumed.

The chronic toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, 4th Edition, (EPA 821/R-02-13), October 2002* as per 40 CFR 136.3(a) *TABLE 1A-LIST OF APPROVED BIOLOGICAL METHODS*. Test species shall consist of *Ceriodaphnia dubia* and *Pimephales promelas* (fathead minnow). A CO₂ atmosphere may be used (in conjunction with an unmodified test) in order to account for artificial pH drift, as previously demonstrated to and authorized by the Director.

Chronic toxicity occurs when the survival, growth, or reproduction for either test species, when exposed to a dilution of RWC percent effluent or lower, is significantly less (at 95% confidence level) than that of the control specimens.

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A five dilution test plus control(s) shall be used. If any of the acceptable control performance criteria are not met, the test shall be considered invalid. IC25 is the inhibition concentration of toxicant (given in % effluent) that would cause a 25% reduction in mean young per female, or a 25% reduction in overall growth for the test population.

Seasonal Chronic WET Limits	
Season	Chronic WET IC ₂₅ % Effluent (RWC)
Summer	>92
Fall	>95
Winter	>94
Spring	>89

Quarterly test results shall be reported along with the Discharge Monitoring Report (DMR) submitted for the end of the reporting calendar quarter (e.g., biomonitoring results for the calendar quarter ending March 31 shall be reported with the DMR due April 28, with the remaining biomonitoring reports submitted with DMRs due each July 28, October 28, and January 28). All test results shall be reported along with the DMR submitted for that reporting period. The format for the report shall be consistent with the latest revision of the *Region VIII Guidance for Chronic Whole Effluent Reporting* and shall include all the physical testing as specified.

If the results for a minimum of ten consecutive tests indicate no chronic toxicity, the permittee may request a reduction in testing frequency and/or reduction to one species. The Director may approve, partially approve, or deny the request based on results and other available information. If approval is given, the modification will take place without a public notice.

The current Utah whole effluent toxicity (WET) policy is in the process of being updated and revised to assure its consistency with the Environmental Protection Agency's national and regional WET policy. When said revised WET policy has been finalized and officially adopted, this permit will be reopened and modified to incorporate satisfactory follow-up chronic toxicity language (chronic pattern of toxicity, PTI and/or TIE/TRE, etc.) without a public notice, as warranted and appropriate.

- c. *Accelerated Testing.* When acute toxicity is indicated during routine biomonitoring as specified in this permit, the permittee shall notify the Director in writing within five (5) days after becoming aware of the test result. The permittee shall perform an accelerated schedule of biomonitoring to establish whether a pattern of toxicity exists. Accelerated testing will begin within seven (7) days after the permittee becomes aware of the test result. Accelerated testing shall be conducted as specified under *Part I.C.4.d, Pattern*

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of Toxicity. If the accelerated testing demonstrates no pattern of toxicity, routine monitoring shall be resumed.

- d. *Pattern of Toxicity.* A pattern of toxicity is defined by the results of a series of up to five (5) biomonitoring tests pursuant to the accelerated testing requirements using 100 percent effluent on the single species found to be more sensitive, once every week for up to five (5) consecutive weeks.

If two (2) consecutive tests (not including the scheduled quarterly or monthly test which triggered the search for a pattern of toxicity) do not result in acute toxicity, no further accelerated testing will be required and no pattern of toxicity will be found to exist. The permittee will provide written verification to the Director within five (5) days, and resume routine monitoring.

A pattern of toxicity is established if one of the following occurs:

- (1) If two (2) consecutive test results (not including the scheduled quarterly or monthly test, which triggered the search for a pattern of toxicity) indicate acute toxicity, this constitutes an established pattern of toxicity.
- (2) If consecutive tests continue to yield differing results each time, the permittee will be required to conduct up to a maximum of five (5) acute tests (not including the scheduled quarterly or monthly test which triggered the search for a pattern of toxicity). If three out of five test results indicate acute toxicity, this will constitute an established pattern of toxicity.

- e. *Preliminary Toxicity Investigation.*

- (1) When a pattern of toxicity is detected the permittee will notify the Director in writing within five (5) days and begin an evaluation of the possible causes of the toxicity. The permittee will have fifteen (15) working days from demonstration of the pattern to complete a Preliminary Toxicity Investigation (PTI) and submit a written report of the results to the Director. The PTI may include, but is not limited to, additional chemical and biological monitoring, examination of pretreatment program records, examination of discharge monitoring reports, a thorough review of the testing protocol, evaluation of treatment processes and chemical use, inspection of material storage and transfer areas to determine if a spill may have occurred, and similar procedures.
- (2) If the PTI identifies a probable toxicant and/or a probable source of toxicity the permittee shall submit, as part of its final results written notification of that effect to the Director. Within thirty (30) days of completing the PTI the permittee shall submit for approval a control program to control effluent toxicity and shall proceed to implement such

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a plan within seven (7) days following approval. The control program, as submitted to or revised by the Director, may be incorporated into the permit.

- (3) If no probable explanation for toxicity is identified in the PTI, the permittee shall notify the Director as part of its final report, along with a schedule for conducting a Phase I Toxicity Reduction Evaluation (TRE) (See *Part I.C.4.f, Toxicity Reduction Evaluation*).
 - (4) If toxicity spontaneously disappears during the PTI, the permittee shall submit written notification to that effect to the Director as part of the reporting requirements of paragraph a of this section.
- f. *Toxicity Reduction Evaluation (TRE)*. If toxicity is detected during the life of this permit and it is determined by the Director that a TRE is necessary, the permittee shall be so notified and shall initiate a TRE immediately thereafter. The purpose of the TRE will be to establish the cause of toxicity, locate the source(s) of the toxicity, and control or provide treatment for the toxicity.
- (1) A TRE may include but is not limited to one, all, or a combination of the following
 - (a) Phase I – Toxicity Characterization
 - (b) Phase II – Toxicity Identification Procedures
 - (c) Phase III – Toxicity Control Procedures
 - (d) Any other appropriate procedures for toxicity source elimination and control.
 - (2) If the TRE establishes that the toxicity cannot be immediately eliminated, the **permittee** shall submit a proposed compliance plan to the Director. The plan shall include the proposed approach to control toxicity and a proposed compliance schedule for achieving control. If the approach and schedule are acceptable to the Director, this permit may be reopened and modified.
 - (3) If the TRE shows that the toxicity is caused by a toxicant(s) that may be controlled with specific numerical limitations, the permittee may:
 - (a) Submit an alternative control program for compliance with the numerical requirements.
 - (b) If necessary, provide a modified biomonitoring protocol, which compensates for the pollutant(s) being controlled numerically.

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- (4) If acceptable to the Director, this permit may be reopened and modified to incorporate any additional numerical limitations, a compliance schedule, and/or a modified biomonitoring protocol if judged necessary by the Director.
- (5) Failure to conduct an adequate TRE, or failure to submit a plan or program as described above, or the submittal of a plan or program judged inadequate by the Director, shall be considered a violation of this permit.

D. Reporting of Wastewater Monitoring Results.

1. Wastewater Monitoring Results. Monitoring results obtained during the previous month shall be summarized for each month and reported on a Discharge Monitoring Report Form (EPA No. 3320-1) or by NetDMR3, post-marked or entered into NetDMR no later than the 28th day of the month following the completed reporting period. The first report is due on May 28, 2016. If no discharge occurs during the reporting period, “no discharge” shall be reported. Legible copies of these, and all other reports including whole effluent toxicity (WET) test reports required herein, shall be signed and certified in accordance with the requirements of *Signatory Requirements (see Part VII.G)*, and submitted by NetDMR, or to the Division of Water Quality at the following address:

Department of Environmental Quality
Division of Water Quality
PO Box 144870
Salt Lake City, Utah 84114-4870

2. Reuse Monitoring Results. Monitoring results obtained during the previous month shall be summarized for each month and reported on a Monthly Operational Report, submitted or entered into NetDMR no later than the 28th day of the month following the completed reporting period. The first report is due on May 28, 2016. If no reuse occurs during the reporting period, “no reuse” shall be reported for those applicable effluent parameters. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the requirements of *Signatory Requirements (see Part VII.G)*, and submitted to the Division of Water Quality at the following address:

Department of Environmental Quality
Division of Water Quality
PO Box 144870
Salt Lake City, Utah 84114-4870

³ Starting January 1, 2017 monitoring results must be submitted using NetDMR unless the permittee has successfully petitioned for an exception.

II. INDUSTRIAL PRETREATMENT PROGRAM

- A. Pretreatment Program Delegation. The permittee has been delegated primary responsibility for enforcing against discharges prohibited by *40 CFR 403.5* and applying and enforcing any national Pretreatment Standards established by the United States Environmental Protection Agency in accordance with Section 307 (b) and (c) of *The Clean Water Act (CWA)*, as amended by *The Water Quality Act (WQA)*, of 1987.

The permittee shall implement the Industrial Pretreatment Program in accordance with the legal authorities, policies, and procedures described in the permittee's approved Pretreatment Program submission. Such program commits the permittee to do the following:

1. Carry out inspection, surveillance, and monitoring procedures, which will determine, independent of information supplied by the industrial user, whether the industrial user is in compliance with the pretreatment standards. At a minimum, all significant industrial users shall be inspected and sampled by the permittee at least once per year;
2. Control through permit, order, or similar means, the contribution to the POTW by each industrial user to ensure compliance with applicable pretreatment standards and requirements;
3. Require development, as necessary, of compliance schedules by each industrial user for the installation of control technologies to meet applicable pretreatment standards;
4. Maintain and update industrial user information as necessary, to ensure that all IUs are properly permitted and/or controlled at all times;
5. Enforce all applicable pretreatment standards and requirements and obtain appropriate remedies for noncompliance by any industrial user;
6. Annually publish a list of industrial users that were determined to be in significant noncompliance during the previous year. The notice must be published before March 28 of the following year;
7. Maintain an adequate revenue structure and staffing level for continued implementation of the Pretreatment Program.
8. Evaluate all significant industrial users at least once every two years to determine if they need to develop a slug prevention plan. If a slug prevention plan is required, the permittee shall insure that the plan contains at least the minimum elements required in *40 CFR 403.8(f)(2)(v)*;

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9. Notify all significant industrial users of their obligation to comply with applicable requirements under *Subtitles C and D* of the *Resource Conservation and Recovery Act (RCRA)*; and
 10. Develop, implement, and maintain an enforcement response plan as required by *40 CFR 403.8(f)(5)* which shall, at a minimum,
 - a. Describe how the POTW will investigate instances of noncompliance;
 - b. Describe the types of escalating enforcement responses the POTW will take in response to all anticipated type of industrial user violations; and
 - c. Describe the time periods within which such responses will be taken and identify the POTW staff position(s) responsible for pursuing these actions.
 11. Establish and enforce specific local limits as necessary to implement the provisions of the *40 CFR Parts 403.5(a)* and *(b)*, and as required by *40 CFR Part 403.5(c)*.
- B. Program Updates. The permittee is required to modify its pretreatment program, as necessary, to reflect changes in the regulations of *40 CFR 403*. Such modifications shall be completed within the time frame set forth by the applicable regulations. Modification of the approved pretreatment program must be done in accordance with the requirements of *40 CFR 403.18*. Modifications of the approved program which result in less stringent industrial user requirements shall not be effective until after approval has been granted by the Director.
- C. Annual Report. The permittee shall provide the Division of Water Quality and EPA with an annual report briefly describing the permittee's pretreatment program activities over the previous calendar year. Reports shall be submitted no later than March 28 of each year. These annual reports shall, at a minimum, include:
1. An updated listing of the permittee's industrial users.
 2. A descriptive summary of the compliance activities including numbers of any major enforcement actions, i.e., administrative orders, penalties, civil actions, etc.
 3. An assessment of the compliance status of the permittee's industrial users and the effectiveness of the permittee's Pretreatment Program in meeting its needs and objectives.
 4. A summary of all sampling data taken of the influent and effluent for those pollutants listed in *Part II.H*.
 5. A description of all substantive changes made to the permittee's pretreatment program referenced in *Section B* of this section. Substantive changes include, but

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are not limited to, any change in any ordinance, major modification in the program's administrative structure or operating agreement(s), a significant reduction in monitoring, or a change in the method of funding the program.

6. Other information as may be determined necessary by the Director.

D. General and Specific Prohibitions. Pretreatment standards (*40 CFR 403.5*) specifically prohibit the introduction of the following pollutants into the waste treatment system from any source of non-domestic discharge:

1. Pollutants which create a fire or explosion hazard in the publicly owned treatment works (POTW), including, but not limited to, wastestreams with a closed cup flashpoint of less than 140oF (60oC);
2. Pollutants, which will cause corrosive structural damage to the POTW, but in no case, discharges with a pH lower than 5.0;
3. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in interference;
4. Any pollutant, including oxygen demanding pollutants (BOD, etc.), released in a discharge at such volume or strength as to cause interference in the POTW;
5. Heat in amounts, which will inhibit biological activity in the POTW, resulting in interference, but in no case, heat in such quantities that the influent to the sewage treatment works exceeds 104°F (40°C);
6. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;
7. Pollutants, which result in the presence of toxic gases, vapor, or fumes within the POTW in a quantity that may cause worker health or safety problems;
8. Any trucked or hauled pollutants, except at discharge points designated by the POTW; or
9. Any pollutant that causes pass through or interference at the POTW.
10. Any specific pollutant which exceeds any local limitation established by the POTW in accordance with the requirement of *40 CFR 403.5(c)* and *40 CFR 403.5(d)*.

E. Categorical Standards. In addition to the general and specific limitations expressed in *Part A and D* of this section, applicable National Categorical Pretreatment Standards must be met by all industrial users of the POTW. These standards are published in the federal regulations at *40 CFR 405* et. seq.

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F. Enforcement Notice. *UCA 19-5-104* provides that the State may issue a notice to the POTW stating that a determination has been made that appropriate enforcement action must be taken against an industrial user for noncompliance with any pretreatment requirements within 30 days. The issuance of such notice shall not be construed to limit the authority of the Director.

G. Formal Action. The Director retains the right to take legal action against any industrial user and/or POTW for those cases where a permit violation has occurred because of the failure of an industrial user to meet an applicable pretreatment standard.

H. Self-Monitoring and Reporting Requirements.

1. Influent and Effluent Monitoring and Reporting Requirements. The permittee shall sample and analyze both the influent and effluent, for the following parameters.

Metals Monitoring for Pretreatment Program				
Parameter	MDL(mg/l) *a	Sample Type	Frequency	Units
Total Arsenic	0.157	Composite	6 X Yearly *c	mg/L
Total Cadmium	0.0005			
Total Chromium	0.198			
Total Copper	0.023			
Total Cyanide	0.005			
Total Lead	0.008			
Total Mercury	0.000012	Composite/Grab		
Total Molybdenum	NA	Composite		
Total Nickel	0.135			
Total Selenium	0.005			
Total Silver	0.021			
Total Zinc	0.296			
TTOs, *b	NA	Composite/Grab	2 X Yearly *d	

The results of the analyses of metals, cyanide and toxic organics shall be submitted along with the Discharge Monitoring Report (DMR) at the end of the earliest possible reporting period

*a The minimum detection limit (MDL) of the test method used for analysis must be below this limit, if a test method is not available the permittee must submit documentation to the Director regarding the method that will be used.

*b In addition, the permittee shall analyze the treatment facility influent and effluent for the presence of the toxic pollutants listed in *40 CFR 122 Appendix D Table II (Organic Toxic Pollutants)*. The pesticides fraction of *Appendix D, Table II* is suspended unless pesticides are expected to be present.

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- *c The metals sampling must be done in January - February, March - April, May - June, July – August, September – October, and November – December each year.
 - *d The organic toxics must be sampled during the months of January – June and July – December each year. The toxic pollutants are listed in *40 CFR 122 Appendix D Table II (Organic Toxic Pollutants)*.
2. The permittee shall submit proposed technically based local limits to the Division of Water Quality for approval, within **12 months** of the effective date of the permit. After approval by the Division of Water Quality the local limits must be implemented within 6 months, which includes modification of pretreatment permits. Local limits must be developed in accordance with the requirements of *40 CFR Part 403.5(c)*. The development of technically based local limits is to implement the general and specific prohibitions of *40 CFR, Part 403.5(a)* and *Part 403.5(b)*.

III. BIOSOLIDS REQUIREMENTS

- A. Biosolids Treatment and Disposal. The authorization to dispose of biosolids provided under this permit is limited to those biosolids produced from the treatment works owned and operated by the permittee. The treatment methods and disposal practices are specifically designated below.
1. Treatment. Biosolids produced at the permittee are stabilized in the anaerobic digesters for at least 15 days (actual retention time around 45 days) at a temperature of at least 35° C (95° F) to meet Class B requirements. After stabilization, the Class B biosolids are removed from the digester and either used for agriculture, or composted using the aerated static pile method or the windrow method to meet Class A compost standards.
 2. Description of Biosolids Disposal Method.
 - a. Class A biosolids may be sold or given away to the public for lawn and garden use or land application.
 - b. Class B biosolids may be land applied for agriculture use or at reclamation sites at agronomic rates.
 - c. Biosolids may be disposed of in a landfill.
 3. Changes in Treatment Systems and Disposal Practices.
 - a. Should the permittee change their disposal methods or the biosolids generation and handling processes of the plant, the permittee must notify the Director at least 30 days in advance if the process/method is specified in *40 CFR 503*. This includes, but is not limited to, the permanent addition or removal of any biosolids treatment units (i.e., digesters, drying beds, belt presses, etc.) and/or any other change.
 - b. Should the permittee change their disposal methods or the biosolids generation and handling processes of the plant, the permittee must notify the Director at least 180 days in advance if the process/method is not specified in *40 CFR 503*. This includes, but is not limited to, the permanent addition or removal of any biosolids treatment units (i.e., digesters, drying beds, belt presses, etc.) and/or any other change.

For any biosolids that are land filled, the requirements in *Section 2.12* of the latest version of the *EPA Region VIII Biosolids Management Handbook* must be followed.

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B. Specific Limitations and Monitoring Requirements. All biosolids generated by this facility to be sold or given away to the public shall meet the requirements of *Part III.B.1, 2, 3 and 4* listed below.

1. Metals Limitations. All biosolids sold or given away in a bag or similar container for application to lawns and home gardens must meet the metals limitations as described below. If these metals limitations are not met, the biosolids must be landfilled.

Pollutant Limits, (40 CFR Part 503.13(b)) Dry Mass Basis				
Heavy Metals	Table 1	Table 2	Table 3	Table 4
	Ceiling Conc. Limits, (mg/kg) ¹	CPLR ² , (mg/ha)	Pollutant Conc. Limits, (mg/kg)	APLR ³ , (mg/ha-yr)
Total Arsenic	75	41	41	41
Total Cadmium	85	39	39	39
Total Copper	4300	1500	1500	1500
Total Lead	840	300	300	300
Total Mercury	57	17	17	17
Total Molybdenum	75	N/A	N/A	N/A
Total Nickel	420	420	420	420
Total Selenium	100	100	100	100
Total Zinc	7500	2800	2800	2800

2. Pathogen Limitations. All biosolids sold or given away in a bag or a similar container for application to lawns and home gardens must meet the pathogen limitations for Class A. Land applied biosolids must meet the pathogen limitations for Class B as described below. If the pathogen limitations are not met, the biosolids must be landfilled.

- a. Class A biosolids shall meet one of the pathogen measurement requirements in the following Pathogen Control Class table or shall meet the requirements for a Process to Further Reduce Pathogens as defined in *40 CFR Part 503.32(a) Sewage Sludge – Class A*.
- b. Class B biosolids shall meet the pathogen measurement requirements in the following Pathogen Control Class table or shall meet the requirements for a Process to Significantly Reduce Pathogens as defined in *40 CFR Part 503.32(b) Sewage Sludge – Class B*. In addition, the permittee shall comply with all applicable site restrictions listed below (*40 CFR Part 503.32,(b),(5)*):

1 Dry Weight Basis

2 CPLR -- Cumulative Pollutant Loading Rate

3 APLR – Annual Pollutant Loading Rate

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- (1) Food crops with harvested parts that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after application.
- (2) Food crops with harvested parts below the land surface shall not be harvested for 20 months after application if the biosolids remains on the land surface for four months or more prior to incorporation into the soil.
- (3) Food crops with harvested parts below the surface of the land shall not be harvested for 38 months after application of sewage sludge when the sewage sludge remains on the land surface for less than four months prior to incorporation into the soil.
- (4) Food crops, feed crops, and fiber crops shall not be harvested from the land for 30 days after application.
- (5) Animals shall not be allowed to graze on the land for 30 days after application.
- (6) Turf grown on land where biosolids is applied shall not be harvested for one year after application if the harvested turf is placed on either land with a high potential for public exposure or a lawn.
- (7) Public access to land with a high potential for public exposure shall be restricted for one year after application.
- (8) Public access to land with a low potential for public exposure shall be restricted for 30 days after application.
- (9) The sludge or the application of the sludge shall not cause or contribute to the harm of a threatened or endangered species or result in the destruction or adverse modification of critical habitat of a threatened or endangered species after application.

Pathogen Control Class	
Class A	Class B
Salmonella species –less than three (3) MPN ⁴ per four (4) grams total solids (or less than 1,000 fecal coliforms per gram total solids) or	Fecal Coliforms –less than 2,000,000 colony forming units (CFU) per gram total solids
Enteric viruses –less than one (1) MPN (or plaque forming unit) per four (4) grams total solids or	

⁴ MPN –Most Probable Number

Pathogen Control Class	
Class A	Class B
Viable helminth ova –less than one (1) MPN per four (4) grams total solids	

3. Vector Attraction Reduction Requirements.

a. The permittee will meet vector attraction reduction (VAR) through use of one of the methods listed in *40 CFR 503.33*. Central Valley is meeting the requirements though the following methods.

(1) Central Valley is meeting VAR through *40 CFR Part 503.33,b,1* “The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38 percent (see calculation procedures in “*Environmental Regulations and Technology—Control of Pathogens and Vector Attraction in Sewage Sludge*”.

(a) Central Valley is meeting VAR by a 38% reduction of the volatile solids through anaerobic digestion and/or,

(b) Central Valley is meeting VAR by a 38% reduction of the volatile solids through the solids being treated through composting with a temperature of 40°C (104°F) or higher for at least 14 days with an average temperature over 45°C (113°F).

If the permittee intends to use another one of the alternatives, the Director and the EPA must be informed at least thirty (30) days prior to its use. This change may be made without additional public comment.

4. Self-Monitoring Requirements.

a. At a minimum, upon the effective date of this permit, all chemical pollutants, pathogens and applicable vector attraction reduction requirements shall be monitored according to *40 CFR 503.16(1)(a)*.

Minimum Frequency of Monitoring (40 CFR Part 503.16, 503.26. and 503.46)		
Amount of Biosolids Disposed Per Year		Monitoring Frequency
Dry US Tons	Dry Metric Tons	Per Year or Batch
> 0 to < 320	> 0 to < 290	Once Per Year or Batch
> 320 to < 1650	> 290 to < 1,500	Once a Quarter or Four Times
> 1,650 to < 16,500	> 1,500 to < 15,000 ⁵	Bi-Monthly or Six Times
> 16,500	> 15,000	Monthly or Twelve Times

⁵ Central Valley produced 5,667 Dry Metric Tons in 2013. Accordingly, they will sample at least 6 times per year.

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- b. Sample collection, preservation and analysis shall be performed in a manner consistent with the requirements of *40 CRF 503* and/or other criteria specific to this permit. A metals analysis is to be performed using *Method SW 846* with *Method 3050* used for digestion. For the digestion procedure, an amount of biosolids equivalent to a dry weight of one gram shall be used. The methods are also described in the latest version of the *Region VIII Biosolids Management Handbook*.
- c. The Director may request additional monitoring for specific pollutants derived from biosolids if the data shows a potential for concern.
- d. After two (2) years of monitoring at the frequency specified, the permittee may request that the Director reduce the sampling frequency for the heavy metals. The frequency cannot be reduced to less than once per year for biosolids that are sold or given away to the public for any parameter. The frequency also cannot be reduced for any of the pathogen or vector attraction reduction requirements listed in this permit.

C. Management Practices of Biosolids.

1. Biosolids Distribution Information

- a. For biosolids that are sold or given away, an information sheet shall be provided to the person who receives the biosolids. The label or information sheet shall contain:
- b. The name and address of the person who prepared the biosolids for a sale or to be given away.
- c. A statement that prohibits the application of the biosolids to the land except in accordance with the instructions on the label or information sheet.

2. Biosolids Application Site Storage

- a. For biosolids or material derived from biosolids that are stored in piles for one year or longer, measures shall be taken to ensure that erosion (whether by wind or water) does not occur. However, best management practices should also be used for piles used for biosolids treatment. If a treatment pile is considered to have caused a problem, best management practices could be added as a requirement in the next permit renewal.

3. Land Application Practices

- a. The permittee shall operate and maintain the land application site operations in accordance with the following requirements:

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- (1) The permittee shall provide to the Director and the EPA within 90 days of the effective date of this permit a land application plan.
- (2) Application of biosolids shall be conducted in a manner that will not contaminate the groundwater or impair the use classification for that water underlying the sites.
- (3) Application of biosolids shall be conducted in a manner that will not cause a violation of any receiving water quality standard from discharges of surface runoff from the land application sites. Biosolids shall not be applied to land 10 meters or less from waters of the United States (as defined in *40 CFR 122.2*).
- (4) No person shall apply biosolids for beneficial use to frozen, ice-covered, or snow-covered land where the slope of such land is greater than three percent and is less than or equal to six percent unless one of the following requirements is met:
 - (a) there is 80 percent vegetative ground cover; or,
 - (b) approval has been obtained based upon a plan demonstrating adequate runoff containment measures.
- (5) Application of biosolids is prohibited to frozen, ice-covered, or snow covered sites where the slope of the site exceeds six percent.
- (6) Agronomic Rate
 - (a) Application of biosolids shall be conducted in a manner that does not exceed the agronomic rate for available nitrogen of the crops grown on the site. At a minimum, the permittee is required to follow the methods for calculating agronomic rate outlined in the latest version of the *Region VIII Biosolids Management Handbook* (other methods may be approved by the Director). The treatment plant shall provide written notification to the applier of the biosolids of the concentration of total nitrogen (as N on a dry weight basis) in the biosolids. Written permission from the Director is required to exceed the agronomic rate.
 - (b) The permittee may request the limits of *Part III, C, 6* be modified if different limits would be justified based on local conditions. The limits are required to be developed in cooperation with the local agricultural extension office or university.
 - (c) Deep soil monitoring for nitrate-nitrogen is required for all land application sites (does not apply to sites where biosolids are applied

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less than once every five years). A minimum of six samples for each 320 (or less) acre area is to be collected. These samples are to be collected down to either a 5 foot depth, or the confining layer, whichever is shallower (sample at 1 foot, 2 foot, 3 foot, 4 foot and 5 foot intervals). Each of these one-foot interval samples shall be analyzed for nitrate-nitrogen. In addition to the one-foot interval samples, a composite sample of the 5 foot intervals shall be taken, and analyzed for nitrate-nitrogen as well. Samples are required to be taken once every five years for non-irrigated sites that receive more than 18 inches of precipitation annually or for irrigated sites

- (7) Biosolids shall not be applied to any site area with standing surface water. If the annual high groundwater level is known or suspected to be within five feet of the surface, additional deep soil monitoring for nitrate-nitrogen as described in *Part III.C.(6),(c)*. is to be performed. At a minimum, this additional monitoring will involve a collection of more samples in the affected area and possibly more frequent sampling. The exact number of samples to be collected will be outlined in a deep soil monitoring plan to be submitted to the Director and the EPA within 90 days of the effective date of this permit. The plan is subject to approval by the Director.
- (8) The specified cover crop shall be planted during the next available planting season. If this does not occur, the permittee shall notify the Director in writing. Additional restrictions may be placed on the application of the biosolids on that site on a case-by-case basis to control nitrate movement. Deep soil monitoring may be increased under the discretion of the Director.
- (9) When weather and or soil conditions prevent adherence to the biosolids application procedure, biosolids shall not be applied on the site.
- (10) For biosolids that are sold or given away, an information sheet shall be provided to the person who receives the biosolids. The label or information sheet shall contain:
 - (a) The name and address of the person who prepared the biosolids for sale or give away for application to the land.
 - (b) A statement that prohibits the application of the biosolids to the land except in accordance with the instructions on the label or information sheet.
 - (c) The annual whole biosolids application rate for the biosolids that do not cause the metals loading rates in Tables 1, 2, and 3 (*Part III.B.1.*) to be exceeded.

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- (11) Biosolids subject to the cumulative pollutant loading rates in Table 2 (*Part III.B.1.*) shall not be applied to agricultural land, forest, a public contact site, or a reclamation site if any of the cumulative pollutant loading rates in Table 2 have been reached.
 - (12) If the treatment plant applies the biosolids, it shall provide the owner or leaseholder of the land on which the biosolids are applied notice and necessary information to comply with the requirements in this permit.
 - (13) The permittee shall inspect the application of the biosolids to active sites to prevent malfunctions and deterioration, operator errors and discharges, which may cause or lead to the release of biosolids to the environment or a threat to human health. The permittee must conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment. The permittee shall keep an inspection log or summary including at least the date and time of inspection, the printed name and the handwritten signature of the inspector, a notation of observations made and the date and nature of any repairs or corrective action.
- D. Special Conditions on Biosolids Storage. Permanent storage of biosolids is prohibited. Biosolids shall not be temporarily stored for more than two (2) years. Written permission to store biosolids for more than two years must be obtained from the Director. Storage of biosolids for more than two years will be allowed only if it is determined that significant treatment is occurring.
- E. Representative Sampling. Biosolids samples used to measure compliance with *Part III* of this Permit shall be collected at locations representative of the quality of biosolids generated at the treatment works and immediately prior to land application.
- F. Reporting of Monitoring Results.
1. Biosolids. The permittee shall provide the results of all monitoring performed in accordance with *Part III.B*, and information on management practices, biosolids treatment, site restrictions and certifications shall be provided no later than February 19 of each year. Each report is for the previous calendar year. If no biosolids were sold or given away during the reporting period, "no biosolids were sold or given away" shall be reported. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the *Signatory Requirements* (see *Part VII.G*), and submitted to the Utah Division of Water Quality by NetDMR⁶ or at the following addresses:

⁶ Starting January 1, 2017 monitoring results must be submitted using NetDMR unless the permittee has successfully petitioned for an exception. Annual Biosolids Reports should also be submitted through this system.

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Original to: Biosolids Coordinator
Utah Division of Water Quality
P. O. Box 144870
Salt Lake City Utah, 84114-4870

G. Additional Record Keeping Requirements Specific to Biosolids.

1. Unless otherwise required by the Director, **the permittee is not required to keep records** on compost products if the permittee prepared them from biosolids that meet the limits in Table 3 (*Part III.B.1*), the Class A pathogen requirements in *Part III.B.2* and the vector attraction reduction requirements in *Part III.B.3*. The Director may notify the permittee that additional record keeping is required if it is determined to be significant to protecting public health and the environment.
2. **The permittee is required** to keep the following information for at least 5 years:
 - a. Concentration of each heavy metal in Table 3 (*Part III.B.1*).
 - b. A description of how the pathogen reduction requirements in *Part III.B.2* were met.
 - c. A description of how the vector attraction reduction requirements in *Part III.B.3* were met.
 - d. A description of how the management practices in *Part III.C* were met (if necessary).
 - e. The following certification statement:

"I certify under the penalty of law, that the heavy metals requirements in *Part III.B.1*, the pathogen requirements in *Part III.B.2*, the vector attraction requirements in *Part III.B.3*, the management practices in *Part III.C*. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attraction reduction requirements and the management practices have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment."
3. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit and records of all data used to complete the application for this permit for the life of the permit. Data collected on site, copies of Biosolids Report forms, and a copy of this UPDES biosolids-only permit must be maintained on site during the duration of activity at the permitted location.

IV. STORM WATER REQUIREMENTS.

- A. Coverage of This Section. The requirements listed under this section shall apply to storm water discharges. Storm water discharges from the following portions of the facility may be eligible for coverage under this permit: biosolids drying beds, haul or access roads on which transportation of biosolids may occur, grit screen cleaning areas, chemical loading, unloading and storage areas, salt or sand storage areas, vehicle or equipment storage and maintenance areas, or any other wastewater treatment device or system, used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including lands dedicated to the disposal of sewage sludge that are located within the confines of the facility that may have a reasonable expectation to contribute to pollutants in a storm water discharge.
- B. Prohibition of Non-Storm Water Discharges. Except for discharges identified in *Part I.*, and discharges described below in this paragraph, non-storm water discharges are prohibited. The following non-storm water discharges may be authorized under this permit provided the non-storm water component of the discharge is in compliance with this section; discharges from firefighting activities; fire hydrant flushing; potable water sources including waterline flushing; drinking fountain water; irrigation drainage and lawn watering; routine external building wash down water where detergents or other compounds have not been used in the process; pavement wash waters where spills or leaks of toxic or hazardous materials (including oils and fuels) have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; uncontaminated compressor condensate; uncontaminated springs; uncontaminated ground water; and foundation or footing drains where flows are not contaminated with process materials such as solvents.
- C. Storm Water Pollution Prevention Plan Requirements. The permittee must have (on site) or develop and implement a storm water pollution prevention plan as a condition of this permit.
1. Contents of the Plan. The plan shall include, at a minimum, the following items:
 - a. *Pollution Prevention Team.* Each plan shall identify a specific individual or individuals within the facility organization as members of a storm water Pollution Prevention Team who are responsible for developing the storm water pollution prevention plan and assisting the facility or plant manager in its implementation, maintenance, and revision. The plan shall clearly identify the responsibilities of each team member. The activities and responsibilities of the team shall address all aspects of the facility's storm water pollution prevention plan.
 - b. *Description of Potential Pollutant Sources.* Each plan shall provide a description of potential sources which may reasonably be expected to add significant amounts of pollutants to storm water discharges or which may result in the discharge of pollutants during dry weather from separate storm

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sewers draining the facility. Each plan shall identify all activities and significant materials, which may be reasonably expected to have the potential as a significant pollutant source. Each plan shall include, at a minimum:

- (1) *Drainage.* A site map indicating drainage areas and storm water outfalls. For each area of the facility that generates storm water discharges associated with the waste water treatment related activity with a reasonable potential for containing significant amounts of pollutants, a prediction of the direction of flow and an identification of the types of pollutants that are likely to be present in storm water discharges associated with the activity. Factors to consider include the toxicity of the pollutant; quantity of chemicals used, produced or discharged; the likelihood of contact with storm water; and history of significant leaks or spills of toxic or hazardous pollutants. Flows with a significant potential for causing erosion shall be identified. The site map shall include but not be limited to:
 - (a) Drainage direction and discharge points from all wastewater associated activities including but not limited to grit screen cleaning, bio-solids drying beds and transport, chemical/material loading, unloading and storage areas, vehicle maintenance areas, salt or sand storage areas.
 - (b) Location of any erosion and sediment control structure or other control measures utilized for reducing pollutants in storm water runoff.
 - (c) Location of bio-solids drying beds were exposed to precipitation or where the transportation of bio-solids may be spilled onto internal roadways or tracked off site.
 - (d) Location where grit screen cleaning or other routinely performed industrial activities are located and are exposed to precipitation.
 - (e) Location of any handling, loading, unloading or storage of chemicals or potential pollutants such as caustics, hydraulic fluids, lubricants, solvents or other petroleum products, or hazardous wastes and where these may be exposed to precipitation.
 - (f) Locations where any major spills or leaks of toxic or hazardous materials have occurred.
 - (g) Location of any sand or salt piles.
 - (h) Location of fueling stations or vehicle and equipment maintenance and cleaning areas that are exposed to precipitation.

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- (i) Location of receiving streams or other surface water bodies.
 - (j) Locations of outfalls and the types of discharges contained in the drainage areas of the outfalls.
- (2) *Inventory of Exposed Materials.* An inventory of the types of materials handled at the site that potentially may be exposed to precipitation. Such inventory shall include a narrative description of significant materials that have been handled, treated, stored or disposed in a manner to allow exposure to storm water between the time of 3 years prior to the effective date of this permit and the present; method and location of onsite storage or disposal; materials management practices employed to minimize contact of materials with storm water runoff between the time of 3 years prior to the effective date of this permit and the present; the location and a description of existing structural and nonstructural control measures to reduce pollutants in storm water runoff; and a description of any treatment the storm water receives.
- (3) *Spills and Leaks.* A list of significant spills and significant leaks of toxic or hazardous pollutants that occurred at areas that are exposed to precipitation or that otherwise drain to a storm water conveyance at the facility after the date of 3 years prior to the effective date of this permit. Such list shall be updated as appropriate during the term of the permit.
- (4) *Sampling Data.* A summary of existing discharge sampling data describing pollutants in storm water discharges from the facility, including a summary of sampling data collected during the term of this permit.
- (5) *Summary of Potential Pollutant Sources and Risk Assessment.* A narrative description of the potential pollutant sources from the following activities associated with treatment works: access roads/rail lines; loading and unloading operations; outdoor storage activities; material handling sites; outdoor vehicle storage or maintenance sites; significant dust or particulate generating processes; and onsite waste disposal practices. Specific potential pollutants shall be identified where known.
- (6) *Measures and Controls.* The permittee shall develop a description of storm water management controls appropriate for the facility, and implement such controls. The appropriateness and priorities of controls in a plan shall reflect identified potential sources of pollutants at the facility. The description of storm water management controls shall address the following minimum components, including a schedule for implementing such controls:

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- (7) *Good Housekeeping.* All areas that may contribute pollutants to storm waters discharges shall be maintained in a clean, orderly manner. These are practices that would minimize the generation of pollutants at the source or before it would be necessary to employ sediment ponds or other control measures at the discharge outlets. Where applicable, such measures or other equivalent measures would include the following: sweepers and covered storage to minimize dust generation and storm runoff; conservation of vegetation where possible to minimize erosion; sweeping of haul roads, bio-solids access points, and exits to reduce or eliminate off site tracking; sweeping of sand or salt storage areas to minimize entrainment in storm water runoff; collection, removal, and proper disposal of waste oils and other fluids resulting from vehicle and equipment maintenance; other equivalent measures to address identified potential sources of pollution.
- (8) *Preventive Maintenance.* A preventive maintenance program shall involve timely inspection and maintenance of storm water management devices (e.g., cleaning oil/water separators, catch basins) as well as inspecting and testing facility equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters, and ensuring appropriate maintenance of such equipment and systems.
- (9) *Spill Prevention and Response Procedures.* Areas where potential spills that can contribute pollutants to storm water discharges can occur, and their accompanying drainage points, shall be identified clearly in the storm water pollution prevention plan. Where appropriate, specifying material handling procedures, storage requirements, and use of equipment such as diversion valves in the plan should be considered. Procedures and equipment for cleaning up spills shall be identified in the plan and made available to the appropriate personnel.
- (10) *Inspections.* In addition to the comprehensive site evaluation required under paragraph (*Part IV.C.1.b.(16)*) of this section, qualified facility personnel shall be identified to inspect designated equipment and areas of the facility on a periodic basis. The following areas shall be included in all inspections: access roads/rail lines, equipment storage and maintenance areas (both indoor and outdoor areas); fueling; material handling areas, residual treatment, storage, and disposal areas; and wastewater treatment areas. A set of tracking or follow-up procedures shall be used to ensure that appropriate actions are taken in response to the inspections. Records of inspections shall be maintained. The use of a checklist developed by the facility is encouraged.

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- (11) *Employee Training.* Employee training programs shall inform personnel responsible for implementing activities identified in the storm water pollution prevention plan or otherwise responsible for storm water management at all levels of responsibility of the components and goals of the storm water pollution prevention plan. Training should address topics such as spill response, good housekeeping and material management practices. The pollution prevention plan shall identify how often training will take place, but training should be held at least annually (once per calendar year). Employee training must, at a minimum, address the following areas when applicable to a facility: petroleum product management; process chemical management; spill prevention and control; fueling procedures; general good housekeeping practices; proper procedures for using fertilizers, herbicides and pesticides.
- (12) *Record keeping and Internal Reporting Procedures.* A description of incidents (such as spills, or other discharges), along with other information describing the quality and quantity of storm water discharges shall be included in the plan required under this part. Inspections and maintenance activities shall be documented and records of such activities shall be incorporated into the plan.
- (13) *Non-storm Water Discharges.*
- (a) *Certification.* The plan shall include a certification that the discharge has been tested or evaluated for the presence of non-storm water discharges. The certification shall include the identification of potential significant sources of non-storm water at the site, a description of the results of any test and/or evaluation for the presence of non-storm water discharges, the evaluation criteria or testing method used, the date of any testing and/or evaluation, and the onsite drainage points that were directly observed during the test. Certifications shall be signed in accordance with *Part VII.G* of this permit.
- (b) *Exceptions.* Except for flows from firefighting activities, sources of non-storm water listed in *Part IV.B. (Prohibition of Non-storm Water Discharges)* of this permit that are combined with storm water discharges associated with industrial activity must be identified in the plan. The plan shall identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.
- (c) *Failure to Certify.* Any facility that is unable to provide the certification required (testing for non-storm water discharges), must notify the *Director* within 180 days after the effective date of this

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permit. If the failure to certify is caused by the inability to perform adequate tests or evaluations, such notification shall describe: the procedure of any test conducted for the presence of non-storm water discharges; the results of such test or other relevant observations; potential sources of non-storm water discharges to the storm sewer; and why adequate tests for such storm sewers were not feasible. Non-storm water discharges to waters of the State, which are not authorized by a *UPDES* permit are unlawful, and must be terminated.

- (14) *Sediment and Erosion Control*. The plan shall identify areas, which, due to topography, activities, or other factors, have a high potential for significant soil erosion, and identify structural, vegetative, and/or stabilization measures to be used to limit erosion.
- (15) *Management of Runoff*. The plan shall contain a narrative consideration of the appropriateness of traditional storm water management practices (practices other than those which control the generation or source(s) of pollutants) used to divert, infiltrate, reuse, or otherwise manage storm water runoff in a manner that reduces pollutants in storm water discharges from the site. The plan shall provide that measures that the permittee determines to be reasonable and appropriate shall be implemented and maintained. The potential of various sources at the facility to contribute pollutants to storm water discharges associated with industrial activity *Part IV.C.1.b* (Description of Potential Pollutant Sources) of this permit] shall be considered when determining reasonable and appropriate measures. Appropriate measures or other equivalent measures may include: vegetative swales and practices, reuse of collected storm water (such as for a process or as an irrigation source), inlet controls (such as oil/water separators), snow management activities, infiltration devices, wet detention/retention devices and discharging storm water through the waste water facility for treatment.
- (16) *Comprehensive Site Compliance Evaluation*. Qualified personnel shall conduct site compliance evaluations at appropriate intervals specified in the plan, but in no case less than once a year. Such evaluations shall provide:
- (a) Areas contributing to a storm water discharge associated with industrial activity shall be visually inspected for evidence of, or the potential for, pollutants entering the drainage system. Measures to reduce pollutant loadings shall be evaluated to determine whether they are adequate and properly implemented in accordance with the terms of the permit or whether additional control measures are needed. Structural storm water management measures, sediment and erosion control measures, and other structural pollution

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prevention measures identified in the plan shall be observed to ensure that they are operating correctly. A visual inspection of equipment needed to implement the plan, such as spill response equipment, shall be made.

- (b) Based on the results of the evaluation, the description of potential pollutant sources identified in the plan in accordance with *Part IV.C.1.b* (Description of Potential Pollutant Sources) of this section and pollution prevention measures and controls identified in the plan in accordance with *Part IV.C.1.b.(6)* (Measures and Controls) of this section shall be revised as appropriate within 2 weeks of such evaluation and shall provide for implementation of any changes to the plan in a timely manner, but in no case more than 12 weeks after the evaluation.
 - (c) A report summarizing the scope of the evaluation, personnel making the evaluation, the date(s) of the evaluation, major observations relating to the implementation of the storm water pollution prevention plan, and actions taken in accordance with paragraph *i.* (above) shall be made and retained as part of the storm water pollution prevention plan for at least 3 years after the date of the evaluation. The report shall identify any incidents of noncompliance. Where a report does not identify any incidents of noncompliance, the report shall contain a certification that the facility is in compliance with the storm water pollution prevention plan and this permit. The report shall be signed in accordance with *Part VII.G* (Signatory Requirements) of this permit.
- (17) *Deadlines for Plan Preparation and Compliance.* The permittee shall prepare and implement a plan in compliance with the provisions of this section within 270 days of the effective date of this permit. If the permittee already has a plan, it shall be revised according to *Part IV.C.1.b.(16)*, Comprehensive Site Evaluation.
- (18) *Keeping Plans Current.* The permittee shall amend the plan whenever there is a change in design, construction, operation, or maintenance, that has a significant effect on the potential for the discharge of pollutants to the waters of the state or if the storm water pollution prevention plan proves to be ineffective in eliminating or significantly minimizing pollutants from sources identified by the plan, or in otherwise achieving the general objective of controlling pollutants in storm water discharges associated with the activities at the facility.

D. Monitoring and Reporting Requirements.

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1. Quarterly Visual Examination of Storm Water Quality. Facilities shall perform and document a visual examination of a storm water discharge associated with industrial activity from each outfall, except discharges exempted below. The examination must be made at least once in each of the following designated periods during daylight hours unless there is insufficient rainfall or snow melt to produce a runoff event: January through March; April through June; July through September; and October through December.
 - a. *Sample and Data Collection.* Examinations shall be made of samples collected within the first 30 minutes (or as soon thereafter as practical, but not to exceed 1 hour) of when the runoff or snowmelt begins discharging. The examinations shall document observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution. The examination must be conducted in a well-lit area. No analytical tests are required to be performed on the samples. All such samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. Where practicable, the same individual should carry out the collection and examination of discharges for entire permit term.
 - b. *Visual Storm Water Discharge Examination Reports.* Visual examination reports must be maintained onsite in the pollution prevention plan. The report shall include the examination date and time, examination personnel, the nature of the discharge (i.e., runoff or snow melt), visual quality of the storm water discharge (including observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution), and probable sources of any observed storm water contamination.
 - c. *Representative Discharge.* When the permittee has two or more outfalls that, based on a consideration of industrial activity, significant materials, and management practices and activities within the area drained by the outfall, the permittee reasonably believes discharge substantially identical effluents, the permittee may collect a sample of effluent of one of such outfalls and report that the observation data also applies to the substantially identical outfall(s) provided that the permittee includes in the storm water pollution prevention plan a description of the location of the outfalls and explains in detail why the outfalls are expected to discharge substantially identical effluents. In addition, for each outfall that the permittee believes is representative, an estimate of the size of the drainage area (in square feet) and an estimate of the runoff coefficient of the drainage area [e.g., low (under 40 percent), medium (40 to 65 percent), or high (above 65 percent)] shall be provided in the plan.
 - d. *Adverse Conditions.* When a discharger is unable to collect samples over the course of the visual examination period as a result of adverse climatic

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conditions, the discharger must document the reason for not performing the visual examination and retain this documentation onsite with the results of the visual examination. Adverse weather conditions, which may prohibit the collection of samples, include weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.) or otherwise make the collection of a sample impracticable (drought, extended frozen conditions, etc.).

- e. *Inactive and Unstaffed Site.* When a discharger is unable to conduct visual storm water examinations at an inactive and unstaffed site, the operator of the facility may exercise a waiver of the monitoring requirement as long as the facility remains inactive and unstaffed. The facility must maintain a certification with the pollution prevention plan stating that the site is inactive and unstaffed so that performing visual examinations during a qualifying event is not feasible.

V. MONITORING, RECORDING & GENERAL REPORTING REQUIREMENTS

- A. Representative Sampling. Samples taken in compliance with the monitoring requirements established under *Part I* shall be collected from the effluent stream prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge. Samples of biosolids shall be collected at a location representative of the quality of biosolids immediately prior to the use-disposal practice.
- B. Monitoring Procedures. Monitoring must be conducted according to test procedures approved under *Utah Administrative Code ("UAC") R317-2-10 and 40CFR Part 503*, unless other test procedures have been specified in this permit.
- C. Penalties for Tampering. The *Act* provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or by both.
- D. Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any Compliance Schedule of this permit shall be submitted no later than 14 days following each schedule date.
- E. Additional Monitoring by the Permittee. If the permittee monitors any parameter more frequently than required by this permit, using test procedures approved under *UAC R317-2-10 and 40 CFR 503* or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or the Biosolids Report Form. Such increased frequency shall also be indicated. Only those parameters required by the permit need to be reported.
- F. Records Contents. Records of monitoring information shall include:
1. The date, exact place, and time of sampling or measurements;
 2. The individual(s) who performed the sampling or measurements;
 3. The date(s) and time(s) analyses were performed;
 4. The individual(s) who performed the analyses;
 5. The analytical techniques or methods used; and,
 6. The results of such analyses.
- G. Retention of Records. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least five years from the date of the sample,

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measurement, report or application. This period may be extended by request of the Director at any time. A copy of this UPDES permit must be maintained on site during the duration of activity at the permitted location

H. Twenty-four Hour Notice of Noncompliance Reporting.

1. The permittee shall (orally) report any noncompliance including transportation accidents, spills, and uncontrolled runoff from biosolids transfer or land application sites which may seriously endanger health or environment, as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of circumstances. The report shall be made to the Division of Water Quality, (801) 536-4300, or 24-hour answering service (801) 536-4123.
2. The following occurrences of noncompliance shall be reported by telephone (801) 536-4300 as soon as possible but no later than 24 hours from the time the permittee becomes aware of the circumstances:
 - a. Any noncompliance which may endanger health or the environment;
 - b. Any unanticipated bypass, which exceeds any effluent limitation in the permit (See *Part VI.G, Bypass of Treatment Facilities.*);
 - c. Any upset which exceeds any effluent limitation in the permit (See *Part VI.H, Upset Conditions.*);
 - d. Violation of a maximum daily discharge limitation for any of the pollutants listed in the permit; or,
 - e. Violation of any of the Table 3 metals limits, the pathogen limits, the vector attraction reduction limits or the management practices for biosolids that have been sold or given away.
3. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:
 - a. A description of the noncompliance and its cause;
 - b. The period of noncompliance, including exact dates and times;
 - c. The estimated time noncompliance is expected to continue if it has not been corrected;
 - d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and,

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- e. Steps taken, if any, to mitigate the adverse impacts on the environment and human health during the noncompliance period.
4. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Division of Water Quality, (801) 536-4300.
5. Reports shall be submitted to the addresses in *Part I.D, Reporting of Monitoring Results*.
- I. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for *Part I.D* are submitted. The reports shall contain the information listed in *Part V.H.3*
- J. Inspection and Entry The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:
 1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
 2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, including but not limited to, biosolids treatment, collection, storage facilities or area, transport vehicles and containers, and land application sites;
 4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the *Act*, any substances or parameters at any location, including, but not limited to, digested biosolids before dewatering, dewatered biosolids, biosolids transfer or staging areas, any ground or surface waters at the land application sites or biosolids, soils, or vegetation on the land application sites; and,
 5. The permittee shall make the necessary arrangements with the landowner or leaseholder to obtain permission or clearance, the Director, or authorized representative, upon the presentation of credentials and other documents as may be required by law, will be permitted to enter without delay for the purposes of performing their responsibilities.

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VI. COMPLIANCE RESPONSIBILITIES

- A. Duty to Comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements.
- B. Penalties for Violations of Permit Conditions. The *Act* provides that any person who violates a permit condition implementing provisions of the *Act* is subject to a civil penalty not to exceed \$10,000 per day of such violation. Any person who willfully or negligently violates permit conditions or the Act is subject to a fine not exceeding \$25,000 per day of violation. Any person convicted under *UCA 19-5-115(2)* a second time shall be punished by a fine not exceeding \$50,000 per day. Except as provided at *Part VI.G, Bypass of Treatment Facilities* and *Part VI.H, Upset Conditions*, nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.
- C. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- D. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit, which has a reasonable likelihood of adversely affecting human health or the environment. The permittee shall also take all reasonable steps to minimize or prevent any land application in violation of this permit.
- E. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems, which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
- F. Removed Substances. Collected screening, grit, solids, sludge, or other pollutants removed in the course of treatment shall be disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard. Sludge/digester supernatant and filter backwash shall not directly enter either the final effluent or waters of the state by any other direct route.

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G. Bypass of Treatment Facilities.

1. Bypass Not Exceeding Limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to paragraph 2 and 3 of this section.
2. Prohibition of Bypass.
 - a. Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:
 - (1) Bypass was unavoidable to prevent loss of human life, personal injury, or severe property damage;
 - (2) There were no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance, and
 - (3) The permittee submitted notices as required under *section VI.G.3.*
 - b. The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed in *sections VI.G.2.a (1), (2) and (3).*
3. Notice.
 - a. *Anticipated bypass.* Except as provided above in *section VI.G.2* and below in *section VI.G.3.b*, if the permittee knows in advance of the need for a bypass, it shall submit prior notice, at least ninety days before the date of bypass. The prior notice shall include the following unless otherwise waived by the Director:
 - (1) Evaluation of alternative to bypass, including cost-benefit analysis containing an assessment of anticipated resource damages;
 - (2) A specific bypass plan describing the work to be performed including scheduled dates and times. The permittee must notify the Director in advance of any changes to the bypass schedule;

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- (3) Description of specific measures to be taken to minimize environmental and public health impacts;
 - (4) A notification plan sufficient to alert all downstream users, the public and others reasonably expected to be impacted by the bypass;
 - (5) A water quality assessment plan to include sufficient monitoring of the receiving water before, during and following the bypass to enable evaluation of public health risks and environmental impacts; and,
 - (6) Any additional information requested by the Director.
- b. *Emergency Bypass.* Where ninety days advance notice is not possible, the permittee must notify the Director, and the Director of the Department of Natural Resources, as soon as it becomes aware of the need to bypass and provide to the Director the information in *section VI.G.3.a.(1) through (6)* to the extent practicable.
- c. *Unanticipated bypass.* The permittee shall submit notice of an unanticipated bypass to the Director as required under *Part IV.H, Twenty Four Hour Reporting.* The permittee shall also immediately notify the Director of the Department of Natural Resources, the public and downstream users and shall implement measures to minimize impacts to public health and environment to the extent practicable.

H. Upset Conditions.

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of paragraph 2 of this section are met. Director's administrative determination regarding a claim of upset cannot be judiciously challenged by the permittee until such time as an action is initiated for noncompliance.
2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - a. An upset occurred and that the permittee can identify the cause(s) of the upset;
 - b. The permitted facility was at the time being properly operated;
 - c. The permittee submitted notice of the upset as required under *Part V.H, Twenty-four Hour Notice of Noncompliance Reporting;* and,

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- d. The permittee complied with any remedial measures required under *Part VI.D, Duty to Mitigate*.
3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

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VII. GENERAL REQUIREMENTS

- A. Planned Changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when the alteration or addition could significantly change the nature or increase the quantity of parameters discharged or pollutant sold or given away. This notification applies to pollutants, which are not subject to effluent limitations in the permit. In addition, if there are any planned substantial changes to the permittee's existing sludge facilities or their manner of operation or to current sludge management practices of storage and disposal, the permittee shall give notice to the Director of any planned changes at least 30 days prior to their implementation.
- B. Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements.
- C. Permit Actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- D. Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee shall apply for and obtain a new permit. The application shall be submitted at least 180 days before the expiration date of this permit.
- E. Duty to Provide Information. The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.
- F. Other Information. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts or information.
- G. Signatory Requirements. All applications, reports or information submitted to the Director shall be signed and certified.
 - 1. All permit applications shall be signed by either a principal executive officer or ranking elected official.

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2. All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described above and submitted to the Director, and,
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. A duly authorized representative may thus be either a named individual or any individual occupying a named position.
3. Changes to authorization. If an authorization under *paragraph VII.G.2* is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of *paragraph VII.G.2.* must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.
4. Certification. Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."
- H. Penalties for Falsification of Reports. The *Act* provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than \$10,000.00 per violation, or by imprisonment for not more than six months per violation, or by both.
- I. Availability of Reports. Except for data determined to be confidential under *UAC R317-8-3.2*, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the office of Director. As required by the *Act*,

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permit applications, permits and effluent data shall not be considered confidential.

- J. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the permittee of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under the *Act*.
- K. Property Rights. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.
- L. Severability. The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.
- M. Transfers. This permit may be automatically transferred to a new permittee if:
1. The current permittee notifies the Director at least 20 days in advance of the proposed transfer date;
 2. The notice includes a written agreement between the existing and new permittee's containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,
 3. The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph 2 above.
- N. State or Federal Laws. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by *UCA 19-5-117* and *Section 510* of the *Act* or any applicable Federal or State transportation regulations, such as but not limited to the Department of Transportation regulations.
- O. Water Quality - Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations and compliance schedule, if necessary, if one or more of the following events occurs:

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1. Water Quality Standards for the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit.
 2. A final wasteload allocation is developed and approved by the State and/or EPA for incorporation in this permit.
 3. Revisions to the current CWA § 208 areawide treatment management plans or promulgations/revisions to TMDLs (40 CFR 130.7) approved by the EPA and adopted by DWQ which calls for different effluent limitations than contained in this permit.
- P. Biosolids – Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate biosolids limitations (and compliance schedule, if necessary), management practices, other appropriate requirements to protect public health and the environment, or if there have been substantial changes (or such changes are planned) in biosolids use or disposal practices; applicable management practices or numerical limitations for pollutants in biosolids have been promulgated which are more stringent than the requirements in this permit; and/or it has been determined that the permittees biosolids use or land application practices do not comply with existing applicable state or federal regulations.
- Q. Toxicity Limitation - Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include, whole effluent toxicity (WET) limitations, a compliance date, a compliance schedule, a change in the whole effluent toxicity (biomonitoring) protocol, additional or modified numerical limitations, or any other conditions related to the control of toxicants if one or more of the following events occur;
1. Toxicity is detected, as per *Part I.C.4.a* and/or *b* of this permit, during the duration of this permit.
 2. The TRE results indicate that compliance with the toxic limits will require an implementation schedule past the date for compliance and the Director agrees with the conclusion.
 3. The TRE results indicate that the toxicant(s) represent pollutant(s) that may be controlled with specific numerical limits, and the Director agrees that numerical controls are the most appropriate course of action.
 4. Following the implementation of numerical control(s) of toxicant(s), the Director agrees that a modified biomonitoring protocol is necessary to compensate for those toxicants that are controlled numerically.

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5. The TRE reveals other unique conditions or characteristics, which in the opinion of the permit issuing authority justify the incorporation of unanticipated special conditions in the permit.
- R. Storm Water-Reopener Provision. At any time during the duration (life) of this permit, this permit may be reopened and modified (following proper administrative procedures) as per *UAC R317.8*, to include, any applicable storm water provisions and requirements, a storm water pollution prevention plan, a compliance schedule, a compliance date, monitoring and/or reporting requirements, or any other conditions related to the control of storm water discharges to "waters-of-State".

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VIII. DEFINITIONS

A. Wastewater.

1. The "7-day (and weekly) average", other than for *E. coli* bacteria, fecal coliform bacteria, and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. Geometric means shall be calculated for *E. coli* bacteria, fecal coliform bacteria, and total coliform bacteria. The 7-day and weekly averages are applicable only to those effluent characteristics for which there are 7-day average effluent limitations. The calendar week, which begins on Sunday and ends on Saturday, shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms. Weekly averages shall be calculated for all calendar weeks with Saturdays in the month. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the weekly average calculated for that calendar week shall be included in the data for the month that contains Saturday.
2. The "30-day (and monthly) average," other than for *E. coli* bacteria, fecal coliform bacteria and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. Geometric means shall be calculated for *E. coli* bacteria, fecal coliform bacteria and total coliform bacteria. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.
3. "Act," means the *Utah Water Quality Act*.
4. "Acute toxicity" occurs when 50 percent or more mortality is observed for either test species at any effluent concentration (lethal concentration or "LC₅₀").
5. "Bypass," means the diversion of waste streams from any portion of a treatment facility.
6. "Chronic toxicity" occurs when the IC₂₅ is less than a dilution equivalent to 40 % effluent.
7. "IC₂₅" is the concentration of toxicant (given in % effluent) that would cause a 25% reduction in mean young per female, or a 25% reduction in overall growth for the test population.
8. "Composite Samples" shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the compositing period. Unless otherwise specified, the time between the collection of the first

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sample and the last sample shall not be less than six (6) hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:

- a. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;
 - b. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time the sample was collected may be used;
 - c. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every "X" gallons of flow); and,
 - d. Continuous sample volume, with sample collection rate proportional to flow rate.
9. "CWA," means *The Federal Water Pollution Control Act*, as amended, by *The Clean Water Act of 1987*.
10. "Daily Maximum" (Daily Max.) is the maximum value allowable in any single sample or instantaneous measurement.
11. "EPA," means the United States Environmental Protection Agency.
12. "Director," means Director of the Division of Water Quality.
13. A "grab" sample, for monitoring requirements, is defined as a single "dip and take" sample collected at a representative point in the discharge stream.
14. An "instantaneous" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.
15. "Severe Property Damage," means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
16. "Upset," means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

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B. Biosolids.

1. “Biosolids,” means any material or material derived from sewage solids that have been biologically treated.
2. “Dry Weight-Basis,” means 100 percent solids (i.e. zero percent moisture).
3. “Land Application” is the spraying or spreading of biosolids onto the land surface; the injection of biosolids below the land surface; or the incorporation of biosolids into the land so that the biosolids can either condition the soil or fertilize crops or vegetation grown in the soil. Land application includes distribution and marketing (i.e. the selling or giving away of the biosolids).
4. “Pathogen,” means an organism that is capable of producing an infection or disease in a susceptible host.
5. “Pollutant” for the purposes of this permit is an organic substance, an inorganic substance, a combination of organic and inorganic substances, or pathogenic organisms that after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism either directly from the environment or indirectly by ingestion through the food-chain, could on the basis of information available to the Administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction), or physical deformations in either organisms or offspring of the organisms.
6. “Runoff” is rainwater, leachate, or other liquid that drains over any part of a land surface and runs off the land surface.
7. “Similar Container” is either an open or closed receptacle. This includes, but is not limited to, a bucket, a box, a carton, and a vehicle or trailer with a load capacity of one metric ton or less.
8. “Total Solids” are the materials in the biosolids that remain as a residue if the biosolids are dried at 103° or 105° Celsius.
9. “Treatment Works” are either Federally owned, publicly owned, or privately owned devices or systems used to treat (including recycling and reclamation) either domestic sewage or a combination of domestic sewage and industrial waste or liquid manure.
10. “Vector Attraction” is the characteristic of biosolids that attracts rodents, flies, mosquitos or other organisms capable of transporting infectious agents.

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11. "Animals" for the purpose of this permit are domestic livestock.
12. "Annual Whole Sludge Application Rate" is the amount of sewage sludge (dry-weight basis) that can be applied to a unit area of land during a cropping cycle.
13. "Agronomic Rate" is the whole sludge application rate (dry-weight basis) designed to: (1) provide the amount of nitrogen needed by the crop or vegetation grown on the land; and (2) minimize the amount of nitrogen in the sewage sludge that passes below the root zone of the crop or vegetation grown on the land to the ground water.
14. "Annual Pollutant Loading Rate" is the maximum amount of a pollutant (dry-weight basis) that can be applied to a unit area of land during a 365-day period.
15. "Application Site or Land Application Site" means all contiguous areas of a users' property intended for sludge application.
16. "Cumulative Pollutant Loading Rate" is the maximum amount of an inorganic pollutant (dry-weight basis) that can be applied to a unit area of land.
17. "Grit and Screenings" are sand, gravel, cinders, other materials with a high specific gravity and relatively large materials such as rags generated during preliminary treatment of domestic sewage at a treatment works and shall be disposed of according to *40 CFR 258*.
18. "High Potential for Public Contact Site" is land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.
19. "Low Potential for Public Contact Site" is the land with a low potential for contact by the public. This includes, but is not limited to, farms, ranches, reclamation areas, and other lands which are private lands, restricted public lands, or lands which are not generally accessible to or used by the public.
20. "Monthly Average" is the arithmetic mean of all measurements taken during the month.
21. "Volatile Solids" is the amount of the total solids in sewage sludge lost when the sludge is combusted at 550 degrees Celsius for 15-20 minutes in the presence of excess air.

C. Storm Water.

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1. “Best Management Practices” (“BMPs”) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control facility site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.
2. “Coal pile runoff” means the rainfall runoff from or through any coal storage pile.
3. “Co-located industrial activity” means when a facility has industrial activities being conducted onsite that are described under more than one of the coverage sections of *Appendix II* in the General Multi-Sector Permit for Storm Water Discharges Associated with Industrial Activity. Facilities with co-located industrial activities shall comply with all applicable monitoring and pollution prevention plan requirements of each section in which a co-located industrial activity is described.
4. “Commercial Treatment and Disposal Facilities” means facilities that receive, on a commercial basis, any produced hazardous waste (not their own) and treat or dispose of those wastes as a service to the generators. Such facilities treating and/or disposing exclusively residential hazardous wastes are not included in this definition.
5. “Landfill” means an area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile.
6. “Land application unit” means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for treatment or disposal.
7. “Municipal separate storm sewer system” (large and/or medium) means all municipal separate storm sewers that are either:
 - a. Located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (at the issuance date of this permit, Salt Lake City is the only city in Utah that falls in this category); or
 - b. Located in the counties with unincorporated urbanized populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships or towns within such counties (at the issuance date of this permit Salt Lake County is the only county that falls in this category); or

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- c. Owned or operated by a municipality other than those described in paragraph *a.* or *b.* (above) and that are designated by the *Director* as part of the large or medium municipal separate storm sewer system.
8. “NOI” means ”notice of intent”, it is an application form that is used to obtain coverage under the General Multi-Sector Permit for Storm Water Discharges Associated with Industrial Activity.
9. “NOT” means “notice of termination”, it is a form used to terminate coverage under the General Multi-Sector Permit for Storm Water Discharges Associated with Industrial Activity.
10. “Point source” means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.
11. “Section 313 water priority chemical” means a chemical or chemical categories that:
 - a. Are listed at *40 CFR 372.65* pursuant to *Section 313* of the *Emergency Planning and Community Right-to-Know Act (EPCRA)* (also known as *Title III of the Superfund Amendments and Reauthorization Act (SARA)* of 1986);
 - b. Are present at or above threshold levels at a facility subject to *EPCRA Section 313* reporting requirements; and
 - c. Meet at least one of the following criteria:
 - (1) Are listed in *Appendix D* of *40 CFR Part 122* on either Table II (organic priority pollutants), Table III (certain metals, cyanides, and phenols) or Table V (certain toxic pollutants and hazardous substances);
 - (2) Are listed as a hazardous substance pursuant to *Section 311(b)(2)(A)* of the *CWA* at *40 CFR 116.4*; or
 - (3) Are pollutants for which EPA has published acute or chronic water quality criteria. See *Appendix III* of this permit. This appendix was revised based on final rulemaking EPA published in the *Federal Register* November 30, 1994.

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12. “Significant materials” includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under *Section 101(14) of CERCLA*; any chemical the facility is required to report pursuant to *EPCRA Section 313*; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with storm water discharges.
13. “Significant spills” includes, but is not limited to: releases of oil or hazardous substances in excess of reportable quantities under *Section 311 of the Clean Water Act* (see *40 CFR 110.10* and *CFR 117.21*) or *Section 102 of CERCLA* (see *40 CFR 302.4*).
14. “Storm water” means storm water runoff, snowmelt runoff, and surface runoff and drainage.
15. “SWDMR” means “storm water discharge monitoring report”, a report of the results of storm water monitoring required by the permit. The Division of Water Quality provides the storm water discharge monitoring report form.
16. “Storm water associated with industrial activity” (*UAC R317-8-3.8(6)(c) & (d)*) means the discharge from any conveyance that is used for collecting and conveying storm water and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the *UPDES* program. For the categories of industries identified in paragraphs (a) through (j) of this definition, the term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters (as defined in *40 CFR Part 401*); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. For the categories of industries identified in paragraph (k) of this definition, the term includes only storm water discharges from all areas (except access roads and rail lines) listed in the previous sentence where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to storm water. For the purposes of this paragraph, material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product or waste product.

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The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are Federally, State, or municipally owned or operated that meet the description of the facilities listed in paragraphs (a) to (k) of this definition) include those facilities designated under *UAC R317-8-3.8(1)(a)5*. The following categories of facilities are considered to be engaging in "industrial activity" for purposes of this subsection:

- a. Facilities subject to storm water effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards under *40 CFR Subchapter N* (except facilities with toxic pollutant effluent standards that are exempted under category (k) of this definition);
- b. Facilities classified as Standard Industrial Classifications 24 (except 2434), 26 (except 265 and 267), 28 (except 283 and 285), 29, 311, 32 (except 323), 33, 3441, 373;
- c. Facilities classified as Standard Industrial Classifications 10 through 14 (mineral industry) including active or inactive mining operations (except for areas of coal mining operations no longer meeting the definition of a reclamation area under *40 CFR 434.11(l)* because the performance bond issued to the facility by the appropriate SMCRA authority has been released, or except for areas of non-coal mining operations that have been released from applicable State or Federal reclamation requirements after December 17, 1990) and oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge storm water contaminated by contact with or that has come into contact with, any overburden, raw material, intermediate products, finished products, byproducts or waste products located on the site of such operations; inactive mining operations are mining sites that are not being actively mined, but that have an identifiable owner/operator;
- d. Hazardous waste treatment, storage, or disposal facilities, including those that are operating under interim status or a permit under Subtitle C of RCRA;
- e. Landfills, land application sites, and open dumps that have received any industrial wastes (waste that is received from any of the facilities described under this subsection) including those that are subject to regulation under *Subtitle D of RCRA*;

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- f. Facilities involved in the recycling of materials, including metal scrapyards, battery reclaimers, salvage yards, and automobile junkyards, including but limited to those classified as Standard Industrial Classification 5015 and 5093;
 - g. Steam electric power generating facilities, including coal handling sites;
 - h. Transportation facilities classified as Standard Industrial Classifications 40, 41, 42 (except 4221-25), 43, 44, 45 and 5171 that have vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility that are either involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, airport deicing operations, or that are otherwise identified under paragraphs (a) to (g) or (I) to (k) of this subsection are associated with industrial activity;
 - i. Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are located within the confines of the facility, with a design flow of 1.0 mgd or more, or required to have an approved pretreatment program under *40 CFR Part 403*. Not included are farm lands, domestic gardens or lands used for sludge management where sludge is beneficially reused and that are not physically located in the confines of the facility, or areas that are in compliance with *40 CFR Part 503*;
 - j. Construction activity including clearing, grading and excavation activities except: operations that result in the disturbance of less than 5 acres of total land area that are not part of a larger common plan of development or sale;
 - k. Facilities under Standard Industrial Classifications 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except 311), 323, 34 (except 3441), 35, 36, 37 (except 373), 38, 39, 4221-25, (and that are not otherwise included within categories (a) to (j))
17. "Waste pile" means any non-containerized accumulation of solid, non-flowing waste that is used for treatment or storage.

FSSOB for TBPEL Rule Variance Implementation

**FACT SHEET AND STATEMENT OF BASIS
CENTRAL VALLEY WATER RECLAMATION FACILITY
PERMIT MODIFICATION: DISCHARGE
UPDES PERMIT NUMBER: UT0024392
MAJOR MUNICIPAL**

FACILITY CONTACTS

Person Name: Phillip Heck PhD, P.E.
Position: General Manager
Person Name: Brandon Heidelberger, P.E.
Position: Process Engineer, Assistant General Manager
Person Name: Bryan Mansell, P.E.
Position: Plant Engineer
Person Name: Anthony Daw
Position: Laboratory Director
Person Name: Gary Faulkner
Position: Operations Manager

Facility Name: Central Valley Water Reclamation Facility (Central Valley)
Mailing Address: 800 West Central Valley Road
Salt Lake City, Utah 84119-3379
Telephone: (801) 973-9100

DESCRIPTION OF PERMIT MODIFICATIONS

On December 16, 2014, the Utah Water Quality Board adopted *Utah Administrative Code (UAC) R317-1-3.3, Technology-Based Limits for Controlling Phosphorous Pollution*. The Technology-Based Phosphorous Effluent Limits (TBPEL) establishes new regulations for the discharge of phosphorus to surface waters and is self-implementing. The TBPEL rule includes the following requirements for non-lagoon wastewater treatment plants:

The TBPEL requires that all non-lagoon wastewater treatment works discharging wastewater to surface waters of the state shall provide treatment processes which will produce effluent less than or equal to an annual mean of 1.0 mg/L for total phosphorus. This TBPEL shall be achieved by January 1, 2020 unless a variance has been granted by DWQ. On March 27, 2017, DWQ approved the Central Valley variance request not to extend beyond January 1, 2025 and with an interim total phosphorous annual average limit of 4.0 mg/L beginning January 1, 2020. This permit modification is incorporating the approved variance with the interim limits and dates that were previously public noticed in the local newspaper, in which no comments were received.

The permit effluent limits will incorporate the following changes:

Parameter	Effluent Limitations ¹				
	Maximum Monthly Avg	Maximum Weekly Avg	Annual Average	Daily Minimum	Daily Maximum
TBPEL Rule Limit ²					
Interim Limit ² Total Phosphorous, mg/L	-	-	4.0	-	-
Final Limit ³ Total Phosphorous, mg/L	-	-	1.0	-	-

SELF-MONITORING AND REPORTING REQUIREMENTS

There are no changes to the self-monitoring requirements

PERMIT DURATION

It is recommended that this permit be effective for the remainder of the permits current five (5) years duration (until December 31, 2021).

Drafted by
Daniel Griffin, Environmental Engineer
Utah Division of Water Quality
Permit Modification Drafted December 12, 2019

DWQ-2019-018964

¹ See Definitions, Part VIII, for definition of terms.

² TBPEL of 4.0 mg/L goes into effect on January 1, 2020

³ The final phosphorus limit goes into effect no later than January 1, 2025.

FSSOB for last Permit Renewal

FACT SHEET AND STATEMENT OF BASIS
CENTRAL VALLEY WATER RECLAMATION FACILITY RENEWAL PERMIT
DISCHARGE, BIOSOLIDS & STORM WATER
UPDES PERMIT NUMBER: UT024392
UPDES BIOSOLIDS PERMIT NUMBER: UTL-024392
UPDES MULTI-SECTOR STORM WATER GENERAL PERMIT NUMBER: UTR024392
MAJOR MUNICIPAL

FACILITY CONTACTS

Person Name:	Tom Holstrom, P.E
Position:	General Manager
Person Name:	Phillip Heck Ph.D., P.E.
Position:	Process Engineer, Assistant General Manager
Person Name:	Ron Roberts, P.E.
Position:	Plant Engineer
Person Name:	Anthony Daw
Position:	Laboratory Director
Person Name:	Gary Faulkner
Position:	Operations Manager
Facility Name:	Central Valley Water Reclamation Facility (Central Valley)
Mailing Address:	800 West Central Valley Road Salt Lake City, Utah 84119-3379
Telephone:	(801) 973-9100
Actual Address:	800 West Central Valley Road

DESCRIPTION OF FACILITY

Central Valley Water Reclamation Facility (Central Valley) was completed and in total operation in 1989. The current design capacity is 75 MGD (average daily flow) for a population equivalent of 750,000. The organic design capacity is 125,000 pounds of BOD and 125,000 pounds of TSS. The plant consists of four mechanical bar screens, five headworks pump, four aerated grit chambers followed by ten primary clarifiers, six trickling filters, six solids contact basins, ten secondary clarifiers, four ultraviolet light disinfection channels (currently three equipped with light), two reaeration channels, seven anaerobic digesters, and three sludge belt presses. The ultraviolet disinfection system was installed in 2009 to replace the original chlorination / de-chlorination system from service which resulted in removal of the total residual chlorine limit from the permit.

Central Valley operates a sand filter to produce Type I reuse water during the spring and summer months. Reuse water fills a pond west of the facility which is then used to irrigate its golf course. The facility processes approximately 0.75-1.0 MGD of Type I water, or 1.3% of the total flow while in operation. During these months other ponds at the golf course are filled with post disinfected effluent that flows to the old "Vitro Ditch" back into Mill Creek. The ditch joins Mill Creek less than 100 feet downstream of the plant outfall. The Division of Water Quality (DWQ) has determined this flow does not constitute a new outfall, and does not require monitoring, limits or a permit.

During the renewal process in 1999, Central Valley requested a reduction in monitoring frequency for all parameters except for WET. This request was granted and the frequencies were reduced to four (4) times a week from seven (7) times a week. This was done based on the *Division of Water Quality's 1996 Performance Based Reduction of UPDES Monitoring Frequencies* document.

Central Valley is located at 800 West Central Valley Road (about 3190 South) in South Salt Lake, Salt Lake County, Utah, with its Outfall 001 at latitude 40°42'31" and longitude 111°54'57".

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

1. Instead of an effluent flow limit in the renewal permit, Central Valley has requested that mass limits be included for water quality based effluent limits. The renewal permit contains the following new effluent limits outlined below.

New/Changed Outfall 001 Effluent Limitations					
Parameter	Concentration, mg/L				Mass, lbs
	Average Monthly	Average Weekly	Minimum Daily	Maximum Daily	Average Monthly
CBOD ₅ , mg/L					
Summer (Jul-Sep)	16.0	27.0	-	-	300,240
Fall (Oct-Dec)	20.0	28.0	-	-	375,300
Winter (Jan-Mar)	20.0	28.0	-	-	375,300
Spring (Apr-Jun)	20.0	28.0	-	-	375,300
Ammonia (as N), mg/L					
Summer (Jul-Sep)	3.7	-	-	13.1, *e	69,431
Oct.	4.5	-	-	15.9	84,443
Nov. - Dec.	5.9	-	-	15.9	110,714
Winter (Jan - Mar)	5.8, *e	-	-	12.3	108,837
Spring (Apr-Jun)	5.3	-	-	15.9	99,455
Total Copper, mg/L	0.0233	-	-	-	437.2

2. DWQ uses a new model for specific waters to develop waste load allocations (WLA) for discharges to Waters of the State. DWQ completed a water quality synoptic study on the Jordan River in 2014 to improve understanding of the waterway and the WLA. Subsequently, ammonia limits were modeled for all of the Major Dischargers to the Jordan River which required minor adjustments.
3. The BOD effluent limits for the Jordan River dischargers were not modeled this permit cycle as the waste load analyst indicated that the previous limits are sufficiently protective. Also, BOD is currently being evaluated under a TMDL for the Jordan River.
4. Monitoring guidance for Pretreatment Facilities suggests that a facility that has a design flow greater than 50 MGD should monitor influent and effluent metals at least six (6) times a year on a schedule of once every two (2) months. Central Valley has a design flow of 75 MGD and is currently averaging around 50 MGD. As a result of the guidance, minimum metals sampling have increased accordingly.
5. DWQ determined that, historically, the receiving water was incorrectly assigned to the Jordan River and effluent was actually being discharged to Mill Creek. Thus, the WLA for this renewal permit was developed accordingly and is included in Attachment 2. As a result of this change, effluent limits for many parameters have become more restrictive. Among the limits that have changed are the Chronic WET Biomonitoring Concentrations.

The WLA indicated a seasonal receiving water concentration (RWC) IC₂₅ % WET Limits are appropriate. These are indicated in the table below.

Seasonal Chronic WET Limits Taken From Table 2 in the WLA	
Season	Chronic WET IC ₂₅ % Eff.(RWC)
Summer	>92
Fall	>95
Winter	>94
Spring	>89

6. DWQ adopted UAC R317-1-3.3, Technology-Based Phosphorus Effluent Limit (TBPEL) Rule in 2014. The TBPEL rule as it relates to "non-lagoon" wastewater treatment plants establishes new regulations for the discharge of phosphorus to surface waters and is self-implementing. The TBPEL rule includes the following requirements for non-lagoon wastewater treatment plants:

The TBPEL requires that all non-lagoon wastewater treatment works discharging wastewater to surface waters of the state shall provide treatment processes which will produce effluent less than or equal to an annual mean of 1.0 mg/L for total phosphorus. This TBPEL shall be achieved by January 1, 2020 unless a variance is granted. Central

Valley has submitted an application for a due diligence variance to a January 1, 2025 compliance date, which is under review.

The TBPEL discharging treatment works are required to implement, at a minimum, monthly monitoring of the following beginning July 1, 2015:

- a. R317-1-3.3, D, 1 Influent for total phosphorus (as P) and total Kjeldahl nitrogen (as N) concentrations;
- b. R317-1-3.3, D, 2. Effluent for total phosphorus and orthophosphate (as P), ammonia, nitrate-nitrite and total Kjeldahl nitrogen (an N);

Discharge Monitoring Reports including the above mentioned parameters were generated for Central Valley by DWQ and sent to them prior to the July 2015 monitoring period.

In R317-1-3.3, D, 3 the rule states that all monitoring shall be based on 24-hour composite samples by use of an automatic sampler or a minimum of four grab samples collected a minimum of two hours apart.

7. A Reasonable Potential analysis was completed. The results indicate that an effluent limit for copper is necessary to protect the receiving water; therefore the renewal permit contains effluent limits for this parameter. Monitoring frequency for selenium and mercury will also be increased to monthly in the renewal permit as a result of the RP analysis.
8. Central Valley worked with Rocky Mountain Power to evaluate the facility and determine if there were any places they might be able to improve energy efficiency. One place that was noted is that if they were to measure the effluent dissolved oxygen (DO) after the cascade structure they could reduce the amount of energy required for aeration of the effluent in the post aeration channels. They requested and were granted approval to change the location the DO is sampled.

DISCHARGE

DESCRIPTION OF DISCHARGE

Central Valley has been reporting self-monitoring results on Discharge Monitoring Reports on a monthly basis. A summary of the last 3 years of data is summarized in Attachment 1 and there were no significant violations.

Outfall

Description of Discharge Point

001

Outfall 001 is a large concrete channel which discharges directly to Mill Creek, and is located immediately on the

northwest side of the treatment plant at about latitude 40°42'31" and longitude 111°54'57", approximately 800 West and 3400 South in South Salt Lake City, Salt Lake County, Utah.

Outfall

Description of Reuse Water Discharge Point

001R

Reuse Outfall 001R is approximately located at latitude 40°42'31" and longitude 111°54'57". The discharge is through a pipe to the west pond on the Central Valley Golf Course. The water is then used to irrigate the golf course.

RECEIVING WATERS AND STREAM CLASSIFICATION

The final discharge flows into Mill Creek, hence to the Jordan River and finally into Farmington Bay. According to Utah Administrative Code (UAC) R317-2-14.2 and R317-2-14.5 Mill Creek is listed as a Class 2B, 3C and 4 water.

- Class 2B -Protected for secondary contact recreation such as boating, wading, or similar uses.
- Class 3C -Protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain.
- Class 4 -Protected for agricultural uses including irrigation of crops and stock watering.

BASIS FOR EFFLUENT LIMITATIONS

Limitations on total suspended solids (TSS), *E. coli*, pH and percent removal for carbonaceous biochemical oxygen demand (CBOD₅) are based on current Utah Secondary Treatment Standards, UAC R317-1-3.2. The dissolved oxygen (DO), CBOD₅, and WET testing are based upon water quality standards and are obtained from the waste load analysis (WLA). The chronic ammonia criterion is dependent on the presence or absence of fish early life stages (ELS) in Mill Creek. The chronic ammonia limit for November, December, January, and February are based on the absence of ELS. The chronic ammonia limit for October and the acute ammonia limit for the summer are from the Jordan River POTW WLA and are based on protection of downstream uses. The WLA indicates that these limitations should be sufficiently protective of water quality, in order to meet State water quality standards in the receiving waters. The oil and grease limitation is based on best professional judgment (BPJ). The mass limits are calculated using the design flow of 75 MGD and the chronic effluent concentrations for ammonia, copper, and CBOD₅ identified in the WLA.

Reasonable Potential Analysis

Since January 1, 2016, DWQ has conducted reasonable potential analysis (RP) on all new and renewal applications received after that date. RP for this permit renewal was conducted following DWQ's September 10, 2015 Reasonable Potential Analysis Guidance (RP Guidance). There are four outcomes defined in the RP Guidance: Outcome A, B, C, or D. These Outcomes provide a frame work for what routine monitoring or effluent limitations are required.

A quantitative RP analysis was performed on cyanide, cadmium, chromium, copper, silver, selenium, and mercury to determine if there was reasonable potential for the discharge to exceed the applicable water quality standards. Based on the RP analysis, the following parameters exceeded the most stringent chronic water quality standard or were determined to have a reasonable potential to exceed the standard: copper. Additionally, the RP analysis for selenium and mercury indicates increased monitoring is required. Selenium and mercury will now be required to be monitored monthly. A copy of the RP analysis is included in Attachment 3 of this Fact Sheet.

The permit limitations are:

Outfall 001 Effluent Limitations					
Parameter	Concentration				Mass, lbs
	Average Monthly	Average Weekly	Minimum Daily	Maximum Daily	Average Monthly
CBOD ₅ , mg/L					
Summer (Jul-Sep)	16	27	-	-	300,240
Fall (Oct-Dec)	20	28	-	-	375,300
Winter (Jan-Mar)	20	28	-	-	375,300
Spring (Apr-Jun)	20	28	-	-	375,300
BOD ₅ Min. % Removal	85	-	-	-	-
TSS, mg/L	25	35	-	-	-
TSS Min. % Removal	85	-	-	-	-
<i>E. coli</i> , No/100mL	126	157	-	-	-
pH, Standard Units	-	-	6.5	9	-
Ammonia (as N), mg/L					
Summer (Jul-Sep)	3.7	-	-	13.1, *e	69,431
October	4.5	-	-	15.9	84,443
November -December	5.9	-	-	15.9	110,714
Winter (Jan - Mar)	5.8, *e	-	-	12.3	108,837
Spring (Apr-Jun)	5.3	-	-	15.9	99,455
DO, mg/L	-	-	5	-	
WET *q	-	-	-	LC ₅₀ > 100%	-
Acute Biomonitoring				Effluent	
WET, *p, *q					
Chronic Biomonitoring	-	-	-	IC ₂₅ >RWC	-
Summer (Jul-Sep)	-	-	-	92% Eff.	-
Fall (Oct-Dec)	-	-	-	95% Eff.	-
Winter (Jan-Mar)	-	-	-	94% Eff.	-
Spring (Apr-Jun)	-	-	-	89% Eff.	-
Oil & Grease, mg/L (when sheen observed)	-	-	-	10	-

Outfall 001 Effluent Limitations					
Parameter	Concentration				Mass, lbs
	Average Monthly	Average Weekly	Minimum Daily	Maximum Daily	Average Monthly
Total Copper, mg/L	0.0233	-	-	-	437.2

The permit limitations for Outfall 001R (Reuse) are:

Parameter	Outfall 001R Effluent Limitations *a, *l, *m				
	Max Monthly Average	Max Weekly Median	Max Daily Average	Minimum	Maximum
Turbidity, NTU *l	-	-	2	-	5
TRC, mg/L *e, *m	-	-	-	1	-
BOD ₅ , mg/L	10	-	-	-	-
<i>E. coli</i> , No/100mL	-	0	-	-	9
pH, Standard Units	-	-	-	6.0	9.0

SELF-MONITORING AND REPORTING REQUIREMENTS

The following are the self-monitoring requirements for the renewal permit. The permit will require reports to be submitted monthly and annually, as applicable, on NetDMR or Discharge Monitoring Report (DMR) forms due 28 days after the end of the monitoring period. Lab sheets for biomonitoring must be attached to the biomonitoring DMR. Lab sheets for metals and toxic organics must be attached to the DMRs.

Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
Total Flow *b, *c	Continuous	Recorder	MGD
CBOD ₅ , Influent *d	4 x Weekly	Composite	mg/L, lbs.
Effluent	4 x Weekly	Composite	mg/L, lbs.
TSS, Influent *d	4 x Weekly	Composite	mg/L
Effluent	4x Weekly	Composite	mg/L
<i>E. coli</i>	4x Weekly	Grab	No./100mL
pH	Daily	Grab	SU
Ammonia	4 x Weekly	Grab	mg/L, lbs.
DO	Daily	Grab	mg/L
WET – Biomonitoring, *q			
Ceriodaphnia - Acute	1 st & 3 rd Quarter	Composite	Pass/Fail
Ceriodaphnia - Chronic	Quarterly	Composite	Pass/Fail
Fathead Minnows - Acute	2 nd & 4 th Quarter	Composite	Pass/Fail
Fathead Minnows - Chronic	Quarterly	Composite	Pass/Fail
Oil & Grease *f	When Seen Observed	Grab	mg/L
Orthophosphate, (as P) *g			
Effluent	Monthly	Composite	mg/L

Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
Total Ammonia (as N) *g	Monthly	Composite	mg/L
Phosphorus, Total * g			
Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Total Kjeldahl Nitrogen, TKN (as N) *g			
Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Nitrate, NO ₃ * g	Monthly	Composite	mg/L
Nitrite, NO ₂ * g	Monthly	Composite	mg/L
Cyanide *h, Influent *d	6 X Yearly	Composite	mg/L
Effluent	Monthly *n	Composite	mg/L
Copper	Monthly *n	Composite	mg/L, lbs.
Selenium	Monthly *n	Composite	mg/L
Mercury	Monthly *n	Composite	mg/L
Metals *h, Influent *d	6 X Yearly	Composite	mg/L
Effluent	6 X Yearly	Composite	mg/L
Organic Toxics	2 X Yearly *o	Grab	mg/L

The following is a summary of the Type I reuse self-monitoring and reporting requirements.

Reuse Outfall 001R Self-Monitoring and Reporting Requirements *a *j			
Parameter	Frequency	Sample Type	Units
Total Flow, *b, *c	Continuous	Recorder	MGD
Turbidity	Continuous	Recorder	mg/L
TRC *i *m	Daily	Recorder	mg/L
BOD ₅	Weekly	Composite	mg/L
<i>E. coli</i> *k	Daily	Grab	No./100mL
pH	Daily	Grab	SU

*a See Definitions, *Part VIII*, for definition of terms.

*b Flow is not a pollutant; it is in the permit to help determine loading levels. Flow measurements of influent/effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained.

*c If the rate of discharge is controlled, the rate and duration of discharge shall be reported.

*d In addition to monitoring the final discharge, influent samples shall be taken and

analyzed for this constituent at the same frequency as required for this constituent in the discharge.

- *e The chronic ammonia limit for October, and the acute ammonia limit for the Summer are from the Jordan River POTW WLA and are based on protection of downstream uses.
- *f Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report NA.
- *g These reflect changes and additions required with the adoption of UCA R317-1-3.3, Technology-based Phosphorus Effluent Limits rule. The rule requires that all monitoring shall be based on 24-hour composite samples by use of an automatic sampler or a minimum of four grab samples collected a minimum of two hours apart. This collection method is only for the monthly samples being collected in compliance with the rule.
- *h Pretreatment requirements for metals monitoring have changed. As a result the minimum frequency is now six (6) times per year, or at least once every two (2) months. The metals sampling for pretreatment must be done in January - February, March - April, May - June, July - August, September - October, and November - December each year.
- *i Residual is recommended but no longer required. Sampling not required if chlorination is not being used. The total residual chlorine shall be measured continuously and shall at no time be less than 1.0 mg/l after 30 minutes contact time at peak flow. A 1 mg/l total chlorine residual is recommended after disinfection and before the treated effluent goes into the distribution system.
- *j Reuse monitoring results obtained during the previous month for reuse discharges shall be summarized for each month and reported on a Monthly Operational Report, submitted no later than the 28th day of the month following the completed reporting period.
- *k The weekly median *E. coli* concentration shall be non-detect.
- *l An alternative disposal option or diversion to storage must be automatically activated if turbidity exceeds the maximum instantaneous limit for more than 5 minutes, or chlorine residual drops below the instantaneous required value for more than 5 minutes, where chlorine disinfection is used.
- *m The facility is required to disinfect to destroy, inactivate or remove pathogenic microorganisms by chemical, physical or biological means. Disinfection may be accomplished by chlorination, ozonation, or other chemical disinfectants, UV

radiation. Or other approved processes.

- *n An RP Analysis was run on metals using data as described above. This resulted in the need for increased monitoring, or improved reporting levels for mercury, selenium and cyanide, along with new limits for copper. These reflect the changes.
- *o The organic toxics must be sampled during the months of January – June and July – December each year. The toxic pollutants are listed in *40 CFR 122 Appendix D Table II (Organic Toxic Pollutants)*.
- *p Receiving Water Concentration (RWC) refers to the target receiving water concentration for the chronic WET test.
- *q Failure of an individual WET test does not constitute a violation of the permit, so long as an investigation is initiated in accordance with the permit. If an alternate species is approved for WET testing, the permit will be modified accordingly without a public comment period.

BIOSOLIDS

SUBSTANTIAL BIOSOLIDS TREATMENT CHANGES

For clarification purposes, sewage sludge is considered solids, until treatment or testing shows that the solids are safe, and meet beneficial use standards. After the solids are tested or treated, the solids are then known as biosolids. Class A biosolids may be used for high public contact sites, such as home lawns and gardens, parks, or playing fields, etc. Class B biosolids may be used for low public contact sites, such as farms, rangeland, or reclamation sites, etc.

During the previous permitting cycle Central Valley relocated their composting operations to the facility property. They have also switched from land application in Ensign Valley to farmland in Box Elder County near Corrine Utah.

In Salt Lake County there has arisen a desire to better manage sewage sludge and food waste in a more cooperative manner. The concept is that Central Valley may use the excess solids handling capacity at its facility by potentially processing sewage sludge from other facilities in the Salt Lake City area and food waste from commercial sources to produce biomethane. Central Valley would process the sewage sludge and food waste to meet Class A or B biosolids requirements and then distribute the biosolids to farmers and/ or compost them with food waste and distribute the compost to the public. They would also be able to use the increased gas production to generate more power on site. Central Valley wishes to intercept any sewage sludge and food waste that may be heading to landfills and process them for reuse as nutrient containing soil amendments. Other POTW facilities may participate in this agreement. If this happens, they will receive the sewage sludge from the facilities and complete processing to Class A or B biosolids before final

disposal. As far as the permit is considered, it is just another solids stream to be monitored and reported. This activity is allowed under the biosolids rules and is considered a transfer of the biosolids to another facility. If this does happen there will be no requirement to modify the permit.

DESCRIPTION OF TREATMENT AND DISPOSAL

Central Valley submitted their 2013 annual biosolids report on February 18, 2014. The report states that they produced 5,667 dry metric tons (DMT) of biosolids in 2013. Of the 5,667 DMT produced, 4,459 DMT were land applied as a Class B product on farm land located in Box Elder County near Corrine for crops ultimately used as cattle feed. An additional 1,108 DMT were sold as a Class A compost product to the public for home lawn and garden use. The biosolids are stabilized in anaerobic digesters with a solids retention time of at least 45 days. After stabilization, the Class B biosolids are either used for agriculture, or composted using the aerated static pile method or the windrow method to meet Class A compost standards.

The last inspection conducted at the land application site was March 26, 2014. The inspection showed that Central Valley was in compliance with all aspects of the biosolids management program.

SELF-MONITORING REQUIREMENTS

Under 40 CFR 503.16(a)(1), the self-monitoring requirements are based upon the amount of biosolids disposed per year and shall be monitored according to the chart below.

Minimum Frequency of Monitoring (40 CFR Part 503.16, 503.26. and 503.46)		
Amount of Biosolids Disposed Per Year		Monitoring Frequency
Dry US Tons	Dry Metric Tons	Per Year or Batch
> 0 to < 320	> 0 to < 290	Once Per Year or Batch
> 320 to < 1650	> 290 to < 1,500	Once a Quarter or Four Times
> 1,650 to < 16,500	> 1,500 to < 15,000	Bi-Monthly or Six Times
> 16,500	> 15,000	Monthly or Twelve Times

Accordingly Central Valley will sample the belt press cake at least six times a year for land application and the compost four times per year.

Landfill Monitoring

Under 40 CFR 258, the landfill monitoring requirements include a paint filter test. If the biosolids do not pass a paint filter test, the biosolids cannot be disposed in the sanitary landfill (40 CFR 258.28(c)(1)). Central Valley disposed of 0 DMT of biosolids at E.T. Technologies solids generation site at the Salt Lake County Landfill.

BIOSOLIDS LIMITATIONS

Heavy Metals

Class A Biosolids for Home Lawn and Garden Use

The intent of the heavy metals regulations of Table 3, 40 CFR 503.13 is to ensure the heavy metals do not build up in the soil in home lawn and gardens to the point where the heavy metals become phytotoxic to plants. The permittee will be required to produce an information sheet (see Part III. C. of the permit) to be made available to all people who are receiving and land applying Class A biosolids to their lawns and gardens. If the instructions of the information sheet are followed to any reasonable degree, the Class A biosolids will be able to be land applied year after year, to the same lawns and garden plots without any deleterious effects to the environment. The information sheet must be provided to the public, because the permittee is not required, nor able to track the quantity of Class A biosolids that are land applied to home lawns and gardens.

Class A Requirements With Regards to Heavy Metals

If the biosolids are to be applied to a lawn or home garden, the biosolids shall not exceed the maximum heavy metals in Table 1 and the monthly average pollutant concentrations in Table 3 (see Table 1 and Table 3 below). If the biosolids do not meet these requirements, the biosolids cannot be sold or given away for applications to home lawns and gardens.

Class B Requirements for Agriculture and Reclamation Sites

The intent of the heavy metals regulations of Tables 1, 2 and 3, of 40 CFR 503.13 is to ensure that heavy metals do not build up in the soil at farms, forest land, and land reclamation sites to the point where the heavy metals become phytotoxic to plants. The permittee is required to produce an information sheet (see Part III. C. of the permit) to be handed out to all people who are receiving and land applying Class B biosolids to farms, ranches, and land reclamation sites (if biosolids are only applied to land owned by the permittee, the information sheet requirements are waived). If the biosolids are land applied according to the regulations of 40 CFR 503.13, to any reasonable degree, the Class B biosolids will be able to be land applied year after year, to the same farms, ranches, and land reclamation sites without any deleterious effects to the environment.

Class B Requirements With Regards to Heavy Metals

If the biosolids are to be land applied to agricultural land, forest land, a public contact site or a reclamation site it must meet at all times:

The maximum heavy metals listed in *40 CFR Part 503.13(b) Table 1* and the heavy metals loading rates in *40 CFR Part 503.13(b) Table 2*; or

The maximum heavy metals in *40 CFR Part 503.13(b) Table 1* and the monthly heavy metals concentrations in *40 CFR Part 503.13(b) Table 3*.

Tables 1, 2, and 3 of Heavy Metal Limitations. See Part VII. of the permit for definition of terms.

Pollutant Limits, (40 CFR Part 503.13(b)) Dry Mass Basis				
Heavy Metals	Table 1	Table 2	Table 3	Table 4
	Ceiling Conc. Limits, (mg/kg) ¹	CPLR ² , (mg/ha)	Pollutant Conc. Limits, (mg/kg)	APLR ³ , (mg/ha-yr)
Total Arsenic	75	41	41	41
Total Cadmium	85	39	39	39
Total Copper	4300	1500	1500	1500
Total Lead	840	300	300	300
Total Mercury	57	17	17	17
Total Molybdenum	75	N/A	N/A	N/A
Total Nickel	420	420	420	420
Total Selenium	100	100	100	100
Total Zinc	7500	2800	2800	2800

Any violation of these limitations shall be reported in accordance with the requirements of Part III.F.1. of the permit. If the biosolids do not meet these requirements they cannot be land applied.

Pathogens

The Pathogen Control class listed in the table below must be met;

Pathogen Control Class	
Class A (40 CFR Part 503.32 (a), (3-8))	Class B (40 CFR Part 503.32 (b), (2))
Salmonella species -less than three (3) per four (4) grams total solids (or less than 1,000 fecal coliforms per gram total solids)	Fecal Coliforms –less than 2,000,000 colony forming units (CFU) per gram total solids
Enteric viruses -less than one (1) MPN ⁴ (or plaque forming unit) per four (4) grams total solids	
Viable helminth ova -less than one (1) MPN per four (4) grams total solids	

Class A Requirements for Home Lawn and Garden Use

If biosolids are land applied to home lawns and gardens, the biosolids need to be treated by a specific process to further reduce pathogens (PFRP), and meet a microbiological limit of less

¹ Dry Weight Basis

² CPLR -- Cumulative Pollutant Loading Rate

³ APLR – Annual Pollutant Loading Rate

⁴ MPN –Most Probable Number

than less than 3 most probable number (MPN) of *Salmonella* per 4 grams of total solids (or less than 1,000 most probable number (MPN/g) of fecal coliform per gram of total solids) to be considered Class A biosolids. Central Valley Choses to accomplish this in the following way:

1. Anaerobic Digestion- The PSRP may be accomplished through anaerobic digesters that have a minimum retention time of 15 days at 95° F (35° C) or 60 days at 68° F (20°C), *Appendix B to Part 503, A, 3* and,
2. Windrow Method- Using the windrow method of composting, the temperature needs to be maintained at 55 °C (131 °F) or higher for fifteen days, with a minimum of five turnings during those fifteen days, *or*
3. Static Aerated Pile Method - Using the static aerated pile method of composting, the temperature of the biosolids is maintained at 55° C (131°F) or higher for at least 3 days),

Both of these composting methods are found under *Appendix B to Part 40 CFR 503, B, 1*

The practice of sale or giveaway to the public is an acceptable use of biosolids of this quality as long as the biosolids continue to meet Class A standards with respect to pathogens. If the biosolids do not meet Class A pathogen standards the biosolids cannot be sold or given away for agriculture purposes or to the public, and the Central Valley will need find another method of beneficial use or disposal.

Class B Requirements for Agriculture and Land Reclamation Use

If biosolids are to be land applied for agriculture or land reclamation the solids need to be treated by a specific process to significantly reduce pathogens (PSRP) found under *40 CFR 503.32 (b)*..:

Central Valley has chosen to achieve Class B biosolids in one of two different ways with regards to pathogens:

1. The PSRP may be accomplished through anaerobic digesters that have a minimum retention time of 15 days at 95° F (35° C) or 60 days at 68° F (20°C). *Appendix B to Part 503, A, 3*,
2. Under *40 CFR 503.32 (b)(2)*, Central Valley may test the biosolids and must meet a microbiological limit of less than 2,000,000 MPN of fecal coliform per gram for the biosolids to be considered Class B biosolids with respect to pathogens.

Vector Attraction Reduction (VAR) Requirements

If the biosolids are land applied, Central Valley will be required to meet a method of vector attraction reduction under *40 CFR 503.33*. Central Valley intends to accomplish the VAR through the method below:

1. Anaerobic Digestion - The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38 percent through anaerobic digestion. The solids need to be treated for at least 15 days at a temperature of at least 95°F (35°C) with a 38% reduction of volatile solids (*40 CFR 503.33(b)(1)*).

If the permittee intends to use another one of the listed alternatives, the Director and the EPA must be informed at least thirty (30) days prior to its use. This change may be made without additional public notice.

Landfill Monitoring

Under *40 CFR 258*, the landfill monitoring requirements include a paint filter test to determine if the biosolids exhibit free liquid. If the biosolids do not pass a paint filter test, the biosolids cannot be disposed in the sanitary landfill (*40 CFR 258.28(c)(1)*).

Record Keeping

The record keeping requirements from *40 CFR 503.17* is included under *Part III.G.* of the permit. The amount of time the records must be maintained are dependent on the quality of the biosolids in regards to the metals concentrations. If the biosolids continue to meet the metals limits of *Table 3* of *40 CFR 503.13*, and are sold or given away the records must be retained for a minimum of five years. If the biosolids are disposed in a landfill the records must be retained for a minimum of five years.

Reporting

Central Valley must report annually as required in *40 CFR 503.18*. This report is to include the results of all monitoring performed in accordance with *Part II.C* of the permit, information on management practices, biosolids treatment, and certifications. This report is due no later than February 19 of each year. Each report is for the previous calendar year.

MONITORING DATA

HEAVY METALS MONITORING

Central Valley sampled the composted biosolids for heavy metals 45 times in 2014. The data below shows that Central Valley met the requirements for exceptional quality (EQ) biosolids, with respect to heavy metals, whether the biosolids were Class A, or Class B.

Central Valley Metals Monitoring Data, 2014 (Compost)			
Parameter	Table 3, mg/kg (Exceptional Quality)	Average, mg/kg	Maximum, mg/kg
Arsenic	41.0	11.1	17.9
Cadmium	39.0	2.2	3.0
Copper	1,500.0	469.8	865
Lead	300.0	18.1	39.2
Mercury	17.0	1.0	1.5

Central Valley Metals Monitoring Data, 2014 (Compost)			
Parameter	Table 3, mg/kg (Exceptional Quality)	Average, mg/kg	Maximum, mg/kg
Molybdenum	75.0	9.6	14.6
Nickel	400.0	14.0	17.7
Selenium	100	7.9	11.0
Zinc	2,800.0	852.1	1500

Central Valley sampled the biosolids dry belt press cake for heavy metals 48 times in 2014. The data below shows that Central Valley met the requirements for EQ biosolids, with respect to heavy metals, whether the biosolids were Class A, or Class B.

Central Valley Metals Monitoring Data, 2014 (Land Application)			
Parameter	Table 3, mg/kg (Exceptional Quality)	Average, mg/kg	Maximum, mg/kg
Arsenic	41.0	14.7	20.0
Cadmium	39.0	3.0	5.8
Copper	1,500.0	692	1,110
Lead	300.0	24.7	144
Mercury	17.0	1.5	4.3
Molybdenum	75.0	17.1	38.1
Nickel	400.0	23.8	87.5
Selenium	100	12.6	17.6
Zinc	2,800.0	1,164	1,990

PATHOGEN MONITORING DATA

Central Valley was required to monitor the biosolids dry belt press cake for pathogens at least six times in 2014. They sampled 93 times. All biosolids land applied in 2014 met *Table 3* of *40 CFR 503.13*, therefore the Central Valley biosolids qualify as EQ with regards to pathogens. The monitoring data is below.

Central Valley Fecal Coliform Monitoring Data 2014 (Belt Filter Press Cake/Land Application)

Geometric Mean of 93 Samples, Most Probable Number Per Gram	Maximum of 93 Samples, Most Probable Number Per Gram
7,863	139,818

Central Valley was required to monitor the composted biosolids for pathogens at least six times in 2014, with each sampling episode consisting of seven samples. The Central Valley monitored 41 times in 2014, for a total of 288 samples. All compost land applied in 2014 met the Class A pathogen standards. The monitoring data is below.

Central Valley Fecal Coliform Monitoring Data 2014 (Compost)

Geometric Mean of 288 Samples, Most Probable Number Per Gram	Maximum of 288 Samples, Most Probable Number Per Gram
3.8	10

TOTAL MAXIMUM DAILY LOAD (TMDL) REQUIREMENTS

Central Valley discharges wastewater into the Jordan River, which has been identified as impaired for Dissolved Oxygen (DO) and Total Dissolved Solids (TDS) based on the 2004, 303(d) assessment process as defined in the Clean Water Act. As required under federal regulation a total maximum daily load (TMDL) will be developed for all impaired waters. The TMDL will focus on developing limitations for those parameters of concern (POC) that were identified during the 305(b) and 303(d) assessment process. POC's are parameters that are in violation of water quality standards or that contribute to impairment of a beneficial use (a major component of the water quality standards).

Currently, a TMDL evaluation is underway for the Jordan River. If the results of the TMDL process establish effluent limits for any of the POC's, then it would be required by (40 CFR Part 130) to include these effluent limits in the UPDES permits. Therefore, it is strongly recommended that the facility staff participate in the TMDL development process. DWQ staff is responsible for scheduling and notifying appropriate facility personnel regarding TMDL meetings. You can also contact your UPDES permit writer for information on scheduled TMDL meetings.

STORM WATER

STORMWATER REQUIREMENTS

Storm water provisions are included in this combined UPDES permit.

The storm water requirements are based on the UPDES Multi-Sector General Permit (MSGP) for Storm Water Discharges for Industrial Activity, General Permit No. UTR000000. All sections of the MSGP that pertain to discharges from wastewater treatment plants have been included and sections which are redundant or do not pertain have been deleted.

The permit requires the preparation and implementation of a storm water pollution prevention plan for all areas within the confines of the plant. Elements of this plan are required to include:

1. The development of a pollution prevention team;
2. Development of drainage maps and materials stockpiles;
3. An inventory of exposed materials;
4. Spill reporting and response procedures;
5. A preventative maintenance program;
6. Employee training;

7. Certification that storm water discharges are not mixed with non-storm water discharges;
8. Compliance site evaluations and potential pollutant source identification, and;
9. Visual examinations of storm water discharges.

Central Valley is currently covered under the UPDES Multi Sector General Permit for Industrial Activities.

PRETREATMENT REQUIREMENTS

The pretreatment requirements remain the same as in the current permit with the permittee administering an approved pretreatment program. Any changes to the program must be submitted for approval to the Division of Water Quality. Authority to require a pretreatment program is provided for in 19-5-108 UCA, 1953 ann. and UAC R317-8-8.

The permittee will be required to develop technically based local limits within 12 months of the effective date of the permit. The development of technically based local limits is to implement the general and specific prohibitions of *40 CFR, Part 403.5(a)* and *Part 403.5(b)*.

The permit requires influent and effluent monitoring for metals and organic toxics listed in *R317-8-7.5* and sludge monitoring for potential pollutants listed in *40 CFR 503*.

BIOMONITORING REQUIREMENTS

A nationwide effort to control toxic discharges where effluent toxicity is an existing or potential concern is regulated in accordance with the State of Utah Permitting and Enforcement Guidance Document for Whole Effluent Toxicity Control (biomonitoring). Authority to require effluent biomonitoring is provided in Permit Conditions, UAC R317-8-4.2, Permit Provisions, UAC R317-8-5.3 and Water Quality Standards, UAC R317-2-5 and R317-2-7.2.

Since the permittee is a major municipal discharger, the renewal permit will again require whole effluent toxicity (WET) testing. Acute and Chronic quarterly biomonitoring will be again be required as described in the permit. As a result of the change in designation of receiving waters the Chronic Biomonitoring IC₂₅ concentrations will change greatly. The previous WLA included an IC₂₅ > 37%. The new concentrations are listed in the table below and were discussed in the changes section above. The IC₂₅ is the inhibition concentration of toxicant (given in % effluent) that would cause a 25% reduction in mean young per female, or a 25% reduction in overall growth for the test population.

The permit contains the standard requirements for accelerated testing upon failure of a WET test and a PTI (Preliminary Toxicity Investigation) and TRE (Toxicity Reduction Evaluation) as necessary. The permit also contains a toxicity limitation re-opener provision. This provision

allows for modification of the permit at any time to include WET limitations and/or increased WET monitoring, should additional information indicate the presence of toxicity in the discharge.

Seasonal Chronic WET Limits as Taken From Table 2 in The WLA	
Season	Chronic WET IC25 % Eff.
Summer	>92
Fall	>95
Winter	>94
Spring	>89

PERMIT DURATION

It is recommended that this permit be effective for a duration of five (5) years.

Drafted by
 Daniel Griffin, Discharge, Biosolids
 Jennifer Robinson, Pretreatment
 Michael George, Storm Water
 Michael Herkimer, Whole Effluent Toxicity
 Ken Hoffman, Reasonable Potential Analysis
 Nick von Stackelberg, Wasteload Analysis
 Utah Division of Water Quality (801) 536-4300

PUBLIC NOTICE

Began: January 6, 2017
 Ended: February 6, 2017

Comments will be received at: 195 North 1950 West
 PO Box 144870
 Salt Lake City, UT 84114-4870

The Public Noticed of the draft permit was published in the The Salt Lake Tribune and Deseret Morning News.

During the public comment period provided under R317-8-6.5, any interested person may submit written comments on the draft permit and may request a public hearing, if no hearing has already been scheduled. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. All comments will be considered in making the final decision and shall be answered as provided in R317-8-6.12.

ADDENDUM TO FSSOB

During finalization of the Permit certain dates, spelling edits and minor language corrections were completed. Due to the nature of these changes they were not considered Major and the permit is not required to be re Public Noticed.

During the comment period one comment letter, from Central Valley, was received on February 2, 2017 and was added to the DWQ document system as document DWQ-2017-000904. The changes/corrections required by the comments contained in the letter were considered minor and did not require it to be re public noticed.

During the public notice period Central Valley requested the relocation of the sampling point for effluent metals to allow them to adapt an unused structure for use in "clean methods" sampling. This change is approved and does not require any other authorization.

ATTACHMENT 1

Effluent Monitoring Data

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Month	Flow, MGD		<i>E. coli</i> , #/100mL		DO	pH		O&G	BOD5, mg/L		TSS, mg/L	
	Ave	Max	Ave	Max	mg/L	Min	Max	mg/L	Ave	Max	Ave	Max
Limit			126	157	5	6.5	9	10	15	21	25	35
Apr-11	67	72	17	22	5.5	7.0	7.6	0	4.9	6.8	6.6	7.9
May-11	69	72	23	36	5.6	7.1	7.5	0	3.3	4.0	5.7	8.0
Jun-11	71	84	7	14	5.4	7.4	7.7	0	2.6	3.4	3.9	3.9
Jul-11	61	68	13	23	5.3	7.2	7.6	0	2.6	3.1	4.2	4.9
Aug-11	57	60	15	22	5.5	7.2	7.5	0	3.4	3.7	6.6	8.3
Sep-11	53	57	24	31	5.3	7.1	7.5	0	3.3	4.4	8.6	12.2
Oct-11	54	57	16	27	5.8	7.0	7.4	0	2.7	3.7	7.4	10.7
Nov-11	54	55	11	13	5.3	7.1	7.6	0	4.0	4.3	8.4	9.8
Dec-11	52	53	15	22	5.9	7.0	7.4	0	4.4	5.4	8.6	9.3
Jan-12	53	55	13	15	6.5	7.1	7.4	0	4.3	4.3	10.1	11.5
Feb-12	54	55	13	13	5.6	7.0	7.6	0	3.8	5.2	6.4	7.5
Mar-12	53	55	29	67	5.0	7.0	7.8	0	3.7	4.6	5.6	6.3
Apr-12	54	56	41	47	5.2	7.0	7.8	0	3.4	3.7	5.1	6.2
May-12	55	57	36	45	5.3	7.0	7.4	0	3.2	3.4	4.1	4.4
Jun-12	53	54	74	116	5.2	7.2	7.5	0	2.6	3.7	5.9	6.4
Jul-12	52	53	26	71	5.4	7.3	7.5	0	3.1	3.0	6.3	6.3
Aug-12	50	51	13	18	5.3	7.3	7.5	0	3.4	4.7	7.3	13.2
Sep-12	49	50	19	23	5.9	7.3	7.5	0	3.1	3.4	5.9	7.3
Oct-12	48	49	13	15	5.3	7.3	7.4	0	3.2	3.2	8.3	7.0
Nov-12	50	53	19	30	5.8	7.2	7.4	0	4.2	5.4	9.6	16.4
Dec-12	50	52	16	18	5.2	7.2	8.2	0	3.8	4.8	9.0	12.3
Jan-13	50	51	21	25	5.0	6.9	7.4	0	4.2	5.4	7.0	7.7
Feb-13	53	53	19	23	5.2	7.1	7.4	0	4.2	4.5	6.8	7.3
Mar-13	53	58	36	44	5.2	7.0	7.4	0	4.0	4.3	5.4	6.9
Apr-13	54	57	23	31	5.1	7.0	7.6	0	3.5	4.7	4.8	5.1
May-13	52	53	19	26	5.3	7.2	7.4	0	2.6	3.2	4.9	5.2
Jun-13	52	54	26	36	5.2	7.2	7.5	0	2.2	2.5	5.3	6.2
Jul-13	52	53	20	25	5.3	7.2	7.7	0	2.2	2.8	6.9	9.0
Aug-13	48	50	39	56	5.6	7.0	7.7	0	3.0	3.7	11.6	10.3
Sep-13	49	51	36	57	5.6	7.2	7.7	0	3.5	3.6	7.6	8.7
Oct-13	47	48	25	30	5.1	7.1	7.3	0	4.0	4.1	9.5	11.6
Nov-13	44	45	22	30	6.2	7.0	7.4	19.2	4.7	5.5	11.2	13.9
Dec-13	46	47	8	15	6.2	7.0	7.4	0	3.7	5.6	7.7	9.8
Jan-14	47	48	6	8	6.5	6.9	7.3	0	3.5	4.3	5.5	5.8
Feb-14	49	51	5	7	6.3	7.0	7.3	0	3.2	3.6	6.3	6.8
Mar-14	49	51	9	13	6.2	6.9	7.7	0	4.4	4.4	7.6	11.1

Month	Ammonia, mg/L				Phosphorus Limit	Quarter	WET TEST	Result
	Ave	Max	Nitrite	Nitrate				
Limit	4	10.6	4	10.6				
Apr-11	0.4	0.6	0.9	11.7	2.5	2011 Qtr 2	Pass/Fail 7Day Chronic Cero	Pass
May-11	0.3	1.2	0.7	11.4	2.4		Pass/Fail 96hr Acute pimp	Pass
Jun-11	0.1	0.5	0.4	13.5	2.4		Pass/Fail 7 Day Chron pimp	Pass
Jul-11	0.1	0.3	0.4	16.0	2.7	2011 Qtr 3	Pass/Fail 7Day Chronic Cero	Pass
Aug-11	0.3	1.1	0.7	14.5	3.2		Pass/Fail 48 hr Acute Cero	Pass
Sep-11	1.0	1.6	0.6	16.0	3.4		Pass/Fail 7 Day Chron pimp	Pass
Oct-11	0.8	1.7	0.9	14.2	3.2	2011 Qtr 4	Pass/Fail 7Day Chronic Cero	Pass
Nov-11	0.5	0.8	0.8	13.9	2.9		Pass/Fail 96hr Acute pimp	Pass
Dec-11	1.2	2.5	1.1	14.6	3.6		Pass/Fail 7 Day Chron pimp	Pass
Jan-12	1.0	2.2	1.0	14.7	3.5	2012 Qtr 1	Pass/Fail 7Day Chronic Cero	Pass
Feb-12	1.0	1.9	0.9	13.7	3.0		Pass/Fail 96hr Acute pimp	Pass
Mar-12	1.9	3.0	0.9	12.0	3.3		Pass/Fail 7 Day Chron pimp	Pass
Apr-12	1.0	1.7	0.8	13.7	3.1	2012 Qtr 2	Pass/Fail 7Day Chronic Cero	Pass
May-12	0.3	0.5	0.8	15.7	3.2		Pass/Fail 96hr Acute pimp	Pass
Jun-12	0.2	0.4	2.1	17.0	3.2		Pass/Fail 7 Day Chron pimp	Pass
Jul-12	0.5	2.7	0.4	16.7	4.2	2012 Qtr 3	Pass/Fail 7Day Chronic Cero	Pass
Aug-12	0.9	1.9	0.5	16.5	3.8		Pass/Fail 48 hr Acute Cero	Pass
Sep-12	1.4	2.0	0.3	15.0	3.8		Pass/Fail 7 Day Chron pimp	Pass
Oct-12	0.8	3.3	0.4	16.1	3.8	2012 Qtr 4	Pass/Fail 7Day Chronic Cero	Pass
Nov-12	0.2	0.4	0.4	18.9	3.7		Pass/Fail 96hr Acute pimp	Pass
Dec-12	0.4	1.2	0.8	20.6	3.3		Pass/Fail 7 Day Chron pimp	Pass
Jan-13	1.2	2.3	1.1	16.9	3.1	2013 Qtr 1	Pass/Fail 7Day Chronic Cero	Pass
Feb-13	1.6	2.3	0.9	15.7	6.7		Pass/Fail 48 hr Acute Cero	Pass
Mar-13	3.2	4.1	0.9	14.0	4.3		Pass/Fail 7 Day Chron pimp	Pass
Apr-13	0.9	6.3	0.7	17.3	3.0	2013 Qtr 2	Pass/Fail 7Day Chronic Cero	Pass
May-13	0.3	0.9	0.7	17.1	3.3		Pass/Fail 96hr Acute pimp	Pass
Jun-13	0.2	0.9	0.5	16.9	3.3		Pass/Fail 7 Day Chron pimp	Pass
Jul-13	0.1	0.7	0.4	19.9	3.3	2013 Qtr 3	Pass/Fail 7Day Chronic Cero	Pass
Aug-13	1.6	3.7	0.4	19.7	3.2		Pass/Fail 48 hr Acute Cero	Pass
Sep-13	2.7	3.6	0.2	21.2	3.5		Pass/Fail 7 Day Chron pimp	Pass
Oct-13	1.4	3.6	0.3	21.5	3.3	2013 Qtr 4	Pass/Fail 7Day Chronic Cero	Pass
Nov-13	0.6	1.0	0.6	21.8	3.4		Pass/Fail 96hr Acute pimp	Pass
Dec-13	0.8	1.7	0.7	19.9	3.4		Pass/Fail 7 Day Chron pimp	Pass
Jan-14	2.0	2.7	0.8	16.9	3.2	2014 Qtr 1	Pass/Fail 7Day Chronic Cero	Pass
Feb-14	1.3	1.7	0.7	16.9	3.5		Pass/Fail 48 hr Acute Cero	Pass
Mar-14	1.0	1.5	0.7	16.3	3.4		Pass/Fail 7 Day Chron pimp	Pass

Metals, Effluent													
		Jun-11	Sep-11	Dec-11	Mar-12	Jun-12	Sep-12	Dec-12	Mar-13	Jun-13	Sep-13	Dec-13	Mar-14
Cyanide	Max	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
	Ave	0.02	0.02	0.02	0.02	0.02	0.02	0.011	0.02	0.02	0.02	0.02	0.02
Arsenic	Max	0.016	0.017	0.014	0.024	0.049	0.037	0.01	0.005	0.007	0.005	0.005	0.005
	Ave	0.012	0.011	0.011	0.015	0.015	0.014	0.0055	0.0042	0.005	0.0047	0.004	0.004
Cadmium	Max	0.001	0.001	0.003	0.001	0.008	0.001	0.01	0.001	0.01	0.005	0.001	0.004
	Ave	0.001	0.001	0.001	0.001	0.002	0.001	0.0026	0.001	0.002	0.0013	0.001	0.001
Chromium	Max	0.01	0.01	0.01	0.042	0.036	0.01	0.01	0.018	0.005	0.005	0.002	0.006
	Ave	0.01	0.01	0.01	0.013	0.013	0.008	0.0026	0.0024	0.001	0.0013	0.001	0.001
Copper	Max	0.03	0.029	0.019	0.025	1.23	0.034	0.04	0.049	0.059	0.045	0.036	0.024
	Ave	0.013	0.013	0.012	0.015	0.085	0.017	0.0199	0.018	0.017	0.016	0.018	0.015
Lead	Max	0.005	0.032	0.01	0.009	0.077	0.009	0.011	0.005	0.001	0.005	0.002	0.003
	Ave	0.004	0.006	0.005	0.006	0.015	0.006	0.0036	0.0014	0.001	0.0013	0.001	0.001
Molybdenum	Max	0.014	0.012	0.022	0.023	0.023	0.011	0.01	0.01	0.013	0.009	0.008	0.009
	Ave	0.011	0.008	0.011	0.008	0.008	0.007	0.0074	0.0076	0.009	0.0078	0.0068	0.007
Nickel	Max	0.008	0.008	0.008	0.021	0.041	0.008	0.01	0.006	0.003	0.005	0.004	0.004
	Ave	0.008	0.008	0.008	0.009	0.011	0.007	0.0027	0.0015	0.001	0.0013	0.0012	0.002
Silver	Max	0.004	0.004	0.004	0.004	0.018	0.004	0.01	0.001	0.01	0.005	0.002	0.001
	Ave	0.004	0.004	0.004	0.004	0.005	0.004	0.0026	0.001	0.002	0.0013	0.001	0.001
Zinc	Max	0.083	0.06	0.095	0.059	1.32	0.122	0.088	0.099	0.057	0.07	0.07	0.067
	Ave	0.041	0.036	0.033	0.039	0.115	0.05	0.044	0.059	0.041	0.043	0.045	0.039
Selenium	Max	0.002	0.001	0.001	0.001	0.001	0.025	0.01	0.002	0.005	0.005	0.003	0.024
	Ave	0.002	0.001	0.001	0.001	0.001	0.013	0.003	0.0017	0.002	0.0017	0.0016	0.003
Mercury	Max	0.0002	0.0001	0.0004	0.0004	0.0007	0.0002	0.001	0.0001	0.0001	0.0005	0.0001	0.0001
	Ave	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001	0.0003	0.0001	0.0001	0.00013	0.0001	0.0001

		Metals, Influent											
		Jun-11	Sep-11	Dec-11	Mar-12	Jun-12	Sep-12	Dec-12	Mar-13	Jun-13	Sep-13	Dec-13	Mar-14
Cyanide	Max	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
	Ave	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Arsenic	Max	0.01	0.01	0.013	0.021	0.012	0.014	0.006	0.005	0.006	0.006	0.006	0.004
	Ave	0.01	0.01	0.013	0.021	0.012	0.014	0.006	0.005	0.006	0.006	0.006	0.004
Cadmium	Max	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	Ave	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Chromium	Max	0.01	0.01	0.01	0.01	0.018	0.01	0.003	0.002	0.002	0.003	0.003	0.002
	Ave	0.01	0.01	0.01	0.01	0.018	0.01	0.0025	0.002	0.002	0.003	0.003	0.002
Copper	Max	0.038	0.069	0.028	0.068	0.044	0.077	0.07	0.057	0.053	0.057	0.079	0.054
	Ave	0.038	0.069	0.028	0.068	0.044	0.077	0.073	0.057	0.053	0.057	0.079	0.054
Lead	Max	0.004	0.007	0.004	0.007	0.018	0.013	0.003	0.002	0.003	0.002	0.002	0.003
	Ave	0.004	0.007	0.004	0.007	0.018	0.013	0.003	0.002	0.003	0.002	0.002	0.003
Molybdenum	Max	0.013	0.01	0.012	0.01	0.005	0.012	0.007	0.009	0.01	0.01	0.009	0.007
	Ave	0.013	0.01	0.012	0.01	0.005	0.012	0.007	0.009	0.01	0.01	0.009	0.007
Nickel	Max	0.008	0.008	0.008	0.008	0.013	0.008	0.003	0.001	0.001	0.001	0.002	0.004
	Ave	0.008	0.008	0.008	0.008	0.013	0.008	0.002	0.001	0.001	0.001	0.002	0.004
Silver	Max	0.004	0.004	0.004	0.004	0.004	0.004	0.002	0.001	0.001	0.001	0.001	0.001
	Ave	0.004	0.004	0.004	0.004	0.004	0.004	0.002	0.001	0.001	0.001	0.001	0.001
Zinc	Max	0.094	0.156	0.128	0.119	0.136	0.135	0.146	0.125	0.134	0.12	0.152	0.107
	Ave	0.094	0.156	0.128	0.119	0.136	0.135	0.134	0.125	0.134	0.12	0.152	0.107
Selenium	Max	0.003	0.002	0.002	0.002	0.002	0.025	0.003	0.002	0.003	0.004	0.003	0.002
	Ave	0.003	0.002	0.002	0.002	0.002	0.025	0.0025	0.002	0.003	0.004	0.003	0.002
Mercury	Max	0.0001	0.0001	0.0002	0.0002	0.0001	0.0002	0.0004	0.0001	0.0001	0.0001	0.0001	0.0001
	Ave	0.0001	0.0001	0.0002	0.0002	0.0001	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001

ATTACHMENT 2

Mill Creek and Jordan River Wasteload Analysis

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Utah Division of Water Quality
ADDENDUM
Statement of Basis
Wasteload Analysis and Level 1 Antidegradation Review

Date: February 14, 2017

Facility: Central Valley Water Reclamation Facility
UPDES No. UT-0024392

Receiving water: Mill Creek

This addendum summarizes the wasteload analysis that was performed to determine water quality based effluent limits (WQBEL) for this discharge. Wasteload analyses are performed to determine point source effluent limitations necessary to maintain designated beneficial uses by evaluating projected effects of discharge concentrations on in-stream water quality. The wasteload analysis also takes into account downstream designated uses (UAC R317-2-8). Projected concentrations are compared to numeric water quality standards to determine acceptability. The numeric criteria in this wasteload analysis may be modified by narrative criteria and other conditions determined by staff of the Division of Water Quality.

Discharge

Outfall 001: Mill Creek → Jordan River

The design flow for Outfall 001 is 75.0 MGD average monthly and 140 MGD maximum daily.

Discharge water quality data was obtained from monitoring site 4992500 Central Valley WWTP. The seasonal average was calculated for temperature, pH and hardness.

Receiving Water

The receiving water for Outfall 001 is Mill Creek, which is tributary to the Jordan River.

Per UAC R317-2-13.10, the designated beneficial uses for Mill Creek from confluence with Jordan River to Interstate Highway 15 are 2B, 3C, and 4.

- *Class 2B - Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.*
- *Class 3C - Protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain.*
- *Class 4 - Protected for agricultural uses including irrigation of crops and stock watering.*

Utah Division of Water Quality
Wasteload Analysis
Central Valley Water Reclamation Facility
UPDES No. UT-0024392

The critical background flow for the wasteload analysis is considered the lowest stream flow for seven consecutive days with a ten year return frequency (7Q10). Daily flow records were obtained for Salt Lake County flow gage 490 Mill Creek at 460 West for the period 1979-2012. The 7Q10 critical flow was calculated using the EPA computer software DFLOW V3.1b (Table 1).

Table 1: Mill Creek critical low flow (7Q10)

Season	Flow (cfs)
Annual	6.2
Summer	9.5
Fall	6.4
Winter	7.6
Spring	14.0

Receiving water quality data was obtained from monitoring site 4992505 Mill Creek above Central Valley WWTP. The average seasonal value was calculated for background conditions.

Mixing Zone

Per UAC R317-2-5, since the discharge is more than twice the background receiving water flow, the discharge is considered instantaneously fully mixed. Therefore, no mixing zone is allowed.

Protection of Downstream Uses

Per UAC R317-2-8, *all actions to control waste discharges under these rules shall be modified as necessary to protect downstream designated uses.* The effluent limits for the discharge to the Jordan River were determined as part of the Jordan River POTW WLA. Any WQBELs that are lower in the Jordan River POTW WLA will supersede those for the Mill Creek WLA.

TMDL

Mill Creek is listed as impaired for E. coli and benthic macroinvertebrates according to the 303(d) list in the 2016 Integrated Report. Downstream segments of the Jordan River are listed for dissolved oxygen (DO), total phosphorus (TP), dissolved copper, total dissolved solids (TDS), E coli, and benthic macroinvertebrates. Phase 1 of the Jordan River TMDL determined that total organic matter is the parameter of concern for the DO impairment in the Jordan River (Cirrus Ecological Solutions and Stantec Consulting, 2013).

Parameters of Concern

The potential parameters of concern identified for the discharge/receiving water are total suspended solids (TSS), CBOD₅, dissolved oxygen (DO), pH, total ammonia (TAN), total nitrogen (TN), total phosphorus (TP) and metals as determined in consultation with the UPDES Permit Writer.

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Ammonia Criteria and Fish Early Life Stages

The water quality criterion for chronic ammonia toxicity is dependent on temperature and pH. The chronic ammonia criterion is also dependent on the presence or absence of fish early life stages (ELS). An evaluation was conducted to determine the presence or absence of ELS in lower Mill Creek. The provisional determination was that ELS are absent in Mill Creek from the Central Valley WRF discharge to the confluence with the Jordan River from November through February, subject to Division of Wildlife Resources review. A summary of this evaluation is attached to this WLA.

WET Limits

The percent of effluent in the receiving water in a fully mixed condition, and acute and chronic dilution in a not fully mixed condition are calculated in the WLA in order to generate WET limits. The LC₅₀ (lethal concentration, 50%) percent effluent for acute toxicity and the IC₂₅ (inhibition concentration, 25%) percent effluent for chronic toxicity, as determined by the WET test, needs to be below the WET limits, as determined by the WLA. The WET limit for LC₅₀ is typically 100% effluent and does not need to be determined by the WLA.

Table 2: WET Limits for IC₂₅

Season	Percent Effluent
Summer	92%
Fall	95%
Winter	94%
Spring	89%

Effluent Limits

Due to the impairment of downstream segments of the Jordan River for DO and the in process TMDL, a wasteload allocation was not completed for DO, CBOD₅, TN and TP. The effluent limits for DO were set equal to the water quality criteria in Mill Creek. The effluent limits for CBOD₅ were set equal to the Jordan River POTW WLA.

The effluent limit for TDS was set equal to the water quality criteria. The effluent limits for E. coli were set equal to secondary standards, which are less than the water quality criteria.

A simple mass balance spreadsheet tool was developed to calculate the WLA for constituents. The WQBELs for constituents are summarized in Appendix A and the ammonia criteria are summarized in Appendix B.

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Table 3: Water Quality Based Effluent Limits Summary

Effluent Constituent	Acute		Chronic	
	Limit	Averaging Period	Limit	Averaging Period
Flow (MGD)	140.0	1 day	75.0	30 days
Ammonia (mg/l)				
Summer	13.1*	1 hour	3.7	30 days
October	15.9		4.5	
November-December	15.9		5.9	
Winter	12.3		5.8*	
Spring	15.9		5.3	
Total Recoverable Metals (µg/l)				
Aluminum	771	1 hour	N/A	4 days
Arsenic	350		158	
Cadmium	5.8		0.5	
Chromium VI	16.4		11.5	
Chromium III	1,402		187	
Copper	37.7		23.3	
Cyanide	22.5		5.3	
Iron	1,028		NONE	
Lead	207		8.3	
Mercury	2.5		0.012	
Nickel	1,185		135	
Selenium	18.9		4.8	
Silver	20.6		NONE	
Zinc	297	306		
Dissolved Oxygen (mg/l)	5.0*	1 day	5.0	30 days
CBOD ₅ (mg/l)*				
Summer	27.0	7-day	16.0	30 days
Fall	28.0		20.0	
Winter	28.0		20.0	
Spring	28.0		20.0	

* Limit from Jordan River POTW WLA based on protection of downstream uses.

For parameters without a WQBEL, permit limits should be set according to rules found in R317-1-3 and categorical UPDES discharge requirements.

Antidegradation Level I Review

The objective of the Level I ADR is to ensure the protection of existing uses, defined as the beneficial uses attained in the receiving water on or after November 28, 1975. No evidence is known that the existing uses deviate from the designated beneficial uses for the receiving water. Therefore, the beneficial uses will be protected if the discharge remains below the WQBELs presented in this wasteload.

A Level II Antidegradation Review (ADR) is not required for this discharge since the pollutant concentration and load are not increasing beyond the design capacity of the facility.

**Utah Division of Water Quality
Wasteload Analysis
Central Valley Water Reclamation Facility
UPDES No. UT-0024392**

**Prepared by:
Nicholas von Stackelberg, P.E.
Standards and Technical Services Section**

Documents:

WLA Document: *centralvalley_wla_2017-02-14*
Wasteload Analysis: *centralvalley_potw_wla_2016.xlsx*

References:

Utah Wasteload Analysis Procedures Version 1.0. 2012. Utah Division of Water Quality.

Jordan River Total Maximum Daily Load Water Quality Study – Phase 1. 2013. Cirrus Ecological Solutions and Stantec Consulting. Utah Division of Water Quality.

Wasteload Analysis for Jordan River POTWs – Final. 2016. Utah Division of Water Quality

2016 Integrated Report. 2016. Utah Division of Water Quality.

Utah Division of Water Quality

WASTELOAD ANALYSIS [WLA]

Date: 7/15/2016

Appendix A: Simple Mixing Analysis for Conservative Constituents

Discharging Facility: Central Valley Water Reclamation Facility
 UPDES No: UT-0024392
 Permit Flow [MGD]: 140.00 Annual Max. Daily
 75.00 Annual Max. Monthly

Receiving Water: Mill Creek
 Stream Classification: 2B, 3C, 4
 Stream Flows [cfs]: 6.2 All Seasons Critical Low Flow
 9.5 Summer Jul-Sep
 6.4 Fall Oct-Dec
 7.6 Winter Jan-Mar
 14.0 Spring Apr-Jun

Downstream Receiving Water: Jordan River
 Stream Classification: 2B, 3B, 4

Fully Mixed: YES
 Acute River Width: 100%
 Chronic River Width: 100%

Modeling Information

A simple mixing analysis was used to determine the effluent limits.

All model numerical inputs, intermediate calculations, outputs and graphs are available for discussion, inspection and copy at the Division of Water Quality.

Effluent Limitations

Current State water quality standards are required to be met under a variety of conditions including in-stream flows targeted to the 7-day, 10-year low flow (R317-2-9).

Other conditions used in the modeling effort reflect the environmental conditions expected at low stream flows.

Effluent Limitations for Protection of Recreation (Class 2B Waters)

No dilution in unnamed irrigation ditch.

Physical

Parameter	Maximum Concentration
pH Minimum	6.5
pH Maximum	9.0
Turbidity Increase (NTU)	10.0

Bacteriological

E. coli (30 Day Geometric Mean)	206 (#/100 mL)
E. coli (Maximum)	668 (#/100 mL)

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Effluent Limitations for Protection of Aquatic Wildlife (Class 3C Waters)

Physical

Parameter	Maximum Concentration
Temperature (deg C)	27
Temperature Change (deg C)	4

Dissolved Oxygen (mg/L)	Standard	Limit
Minimum	3.0	3.0
30-day Average	5.0	5.0

Inorganics

Parameter	Chronic Standard (4 Day Average) Standard	Acute Standard (1 Hour Average) Standard
Phenol (mg/L)		0.010
Hydrogen Sulfide (Undissociated) [mg/L]		0.002

Ammonia-Total (mg/L)

Season	Chronic (30-day ave)			Acute (1-hour ave)		
	Standard	Background	Limit	Standard	Background	Limit
Summer	3.5	0.03	3.7	20.5	0.03	21.4
Fall				15.4	0.03	15.9
October	4.3	0.03	4.5			
November-December	5.5	0.03	5.9			
Winter				11.9	0.02	12.3
January-February	6.3	0.02	6.7			
March	5.5	0.02	6.2			
Spring	4.8	0.03	5.3	14.9	0.03	15.9

Metals-Total Recoverable

Parameter	Chronic (4-day ave)			Acute (1-hour ave)		
	Standard ¹	Background	Limit	Standard ¹	Background	Limit
Aluminum (µg/L) ³	N/A	5.0	N/A	750	5.0	771
Arsenic (µg/L)	150	2.0	158	340	2.0	350
Cadmium (µg/L)	0.5	0.08	0.5	5.7	0.08	5.8
Chromium VI (µg/L)	11.0	1.5	11.5	16.0	1.5	16.4
Chromium III (µg/L)	177	1.5	187	1363	1.5	1402
Copper (µg/L)	22.2	1.6	23.3	36.6	1.6	37.7
Cyanide (µg/L) ²	5.2	3.5	5.3	22.0	3.5	22.5
Iron (µg/L)				1000	10.0	1028
Lead (µg/L)	7.8	0.2	8.3	201	0.2	207
Mercury (µg/L) ²	0.012	0.008	0.012	2.4	0.008	2.5
Nickel (µg/L)	128	2.5	135	1153	2.5	1185
Selenium (µg/L)	4.6	1.6	4.8	18.4	1.6	18.9
Silver (µg/L)				20.1	0.3	20.6
Tributyltin (µg/L) ²	0.072	0.048	0.073	0.46	0.048	0.47
Zinc (µg/L)	291	11.2	306	289	11.2	297

1: Based upon a Hardness of 290 mg/l as CaCO₃

2: Background concentration assumed 67% of chronic standard

3: Where the pH is equal to or greater than 7.0 and the hardness is equal to or greater than 50 ppm as CaCO₃ in the receiving water after mixing, the 87 µg/L chronic criterion (expressed as total recoverable) does not apply.

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Organics [Pesticides]

Parameter	Chronic (4-day ave)		Acute (1-hour ave)	
	Standard	Limit	Standard	Limit
Aldrin (µg/L)			1.5	1.5
Chlordane (µg/L)	0.0043	0.0043	1.2	1.2
DDT, DDE (µg/L)	0.001	0.001	0.55	0.55
Diazinon (µg/L)	0.17	0.17	0.17	0.17
Dieldrin (µg/L)	0.0056	0.0056	0.24	0.24
Endosulfan, a & b (µg/L)	0.056	0.056	0.11	0.11
Endrin (µg/L)	0.036	0.036	0.086	0.086
Heptachlor & H. epoxide (µg/L)	0.0038	0.0038	0.26	0.26
Lindane (µg/L)	0.08	0.08	1.0	1.0
Methoxychlor (µg/L)			0.03	0.03
Mirex (µg/L)			0.001	0.001
Nonylphenol (µg/L)	6.6	6.6	28.0	28.0
Parathion (µg/L)	0.0130	0.0130	0.066	0.066
PCB's (µg/L)	0.014	0.014		
Pentachlorophenol (µg/L)	15.0	15.0	19.0	19.0
Toxephene (µg/L)	0.0002	0.0002	0.73	0.73

Radiological

Parameter	Maximum Concentration	
	Standard	Limit
Gross Alpha (pCi/L)	15	

Effluent Limitation for Protection of Agriculture (Class 4 Waters)

Parameter	Maximum Concentration	
	Standard	Limit
Total Dissolved Solids (mg/L)	1200	1200
Boron (µg/L)	75	75
Arsenic (µg/L)	100	100
Cadmium (µg/L)	10	10
Chromium (µg/L)	100	100
Copper (µg/L)	200	200
Lead (µg/L)	100	100
Selenium (µg/L)	50	50
Gross Alpha (pCi/L)	15	15

Freshwater total ammonia criteria based on Title R317-2-14 Utah Administrative Code
Discharge without Mixing Zone

INPUT				
	Summer	Fall	Winter	Spring
pH:	7.48	7.66	7.81	7.68
Beneficial use classification:	3C	3C	3C	3C
OUTPUT				
Total ammonia nitrogen criteria (mg N/L):				
Acute:	20.5	15.4	11.9	14.9

Freshwater total ammonia criteria based on Title R317-2-14 Utah Administrative Code
Discharge without Mixing Zone

INPUT							
	Summer	October	Nov-Dec	Jan-Feb	March	Spring	
Flow (cfs) - Fully Mixed	125.5	122.4	122.4	123.6	123.6	130.0	
<i>Mill Creek</i>	9.5	6.4	6.4	7.6	7.6	14	
<i>Central Valley</i>	116.0	116.0	116.0	116.0	116.0	116.0	
Temperature (deg C) - Fully Mixed	21.7	18.0	14.2	12.5	13.4	16.6	
<i>Mill Creek</i>	18.2	9.8	6.5	6.7	10.2	12.1	
<i>Central Valley</i>	22.0	18.5	14.7	12.9	13.6	17.1	
pH - Fully Mixed	7.16	7.20	7.20	7.15	7.15	7.19	
<i>Mill Creek</i>	7.95	7.89	7.89	7.82	7.82	7.89	
<i>Central Valley</i>	7.10	7.16	7.16	7.10	7.10	7.10	
Are fish early life stages present?	Yes	Yes	No	No	Yes	Yes	
OUTPUT							
Total ammonia nitrogen criteria (mg N/L):							
Chronic - Fish Early Life Stages Present:	3.5	4.3	5.4	5.5	5.5	4.8	
Chronic - Fish Early Life Stages Absent:	3.5	4.3	5.5	6.3	6.0	4.8	

**Utah Division of Water Quality
Statement of Basis
Wasteload Analysis for Jordan River POTWs - FINAL**

Date: March 10, 2016

Facility: Jordan River Publicly Owned Treatment Works (POTW)

Receiving water: Jordan River and State Canal

This addendum summarizes the wasteload analysis that was performed to determine water quality based effluent limits (WQBEL) for this discharge. Wasteload analyses are performed to determine point source effluent limitations necessary to maintain designated beneficial uses by evaluating projected effects of discharge concentrations on in-stream water quality. The wasteload analysis also takes into account downstream designated uses (UAC R317-2-8). Projected concentrations are compared to numeric water quality standards to determine acceptability. The numeric criteria in this wasteload analysis may be modified by narrative criteria and other conditions determined by staff of the Division of Water Quality.

Discharges

The following dischargers are considered in this combined wasteload analysis:

1. Jordan Basin Water Reclamation Facility (WRF)
2. South Valley Water Reclamation Facility (WRF)
3. Central Valley Water Reclamation Facility (WRF)
4. South Davis Sewer District South Wastewater Treatment Plant (WWTP)
5. South Davis Sewer District North Wastewater Treatment Plant (WWTP)

The receiving water and the maximum monthly average discharges used in this wasteload allocation are summarized in Table 1. The projected 5-year monthly average discharge was estimated by multiplying the current average discharge by 10% to account for growth in the service district. Jordan Basin WRF was assumed to operate at design capacity.

Table 1: Receiving waters and design discharge

Facility	Receiving Water	Monthly Ave (MGD)	
		Design Capacity	Projected 5-YR
Jordan Basin WRF	Jordan River, from confluence with Little Cottonwood Creek to Narrows Diversion	15	15
South Valley WRF	Jordan River, from confluence with Little Cottonwood Creek to Narrows Diversion	50	22.2
Central Valley WRF	Jordan River, from North Temple Street to confluence with Little Cottonwood Creek	75	56.2
SDSD South WWTP	Jordan River, from Farmington Bay to North Temple Street	4	3.4
SDSD North WWTP	State Canal, from Farmington Bay to confluence with the Jordan River	12	7.2

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Jordan River POTWs

Effluent water quality data were obtained from UDWQ monitoring, Jordan River/Farmington Bay Water Quality Council (JRFBWQC) monitoring, and Discharge Monitoring Reports (DMR) and Monthly Operating Reports (MOR) from each facility.

Receiving Waters

The receiving waters for this wasteload allocation are the Jordan River and State Canal.

Per UAC R317-2-14, the designated beneficial uses for the Jordan River and State Canal are shown in Table 2.

Table 2: Beneficial uses for receiving waters

Receiving Water	Beneficial Uses
Jordan River, from Narrows Diversion to Utah Lake	1C, 2B, 3B, 4
Jordan River, from confluence with Little Cottonwood Creek to Narrows Diversion	2B, 3A, 4
Jordan River, from North Temple Street to confluence with Little Cottonwood Creek	2B, 3B*, 4
Jordan River, from Farmington Bay to North Temple Street	2B, 3B*, 3D, 4
State Canal, from Farmington Bay to confluence with the Jordan River	2B, 3B*, 3D, 4

* Site specific criteria for dissolved oxygen. See UAC R317.2.14 Table 2.14.5.

Per UAC R317-2-6, following is the description for each beneficial use listed in Table 2.

- *Class 2B - Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.*
- *Class 3B - Protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.*
- *Class 3D - Protected for waterfowl, shore birds and other water-oriented wildlife not included in Classes 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain.*
- *Class 4 - Protected for agricultural uses including irrigation of crops and stock watering.*

Typically, the critical flow for the wasteload analysis is considered the lowest stream flow for seven consecutive days with a ten year return frequency (7Q10). The seasonal 7Q10 flows calculated in the *Jordan River Flow Analysis* report (Borup and Haws, 1999) were used for the critical low flows for the tributaries and diversions along the Jordan River. The groundwater flow in each reach of the Jordan River was modified to match the seasonal averages from the USGS groundwater model (Stantec 2010, UDWQ 2010), which match the groundwater flows used for the TMDL. The projected 5-year average flows for each POTW was used to determine upstream conditions. The critical low flows are summarized in Table 3.

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Table 3: Critical low flows

POTWs at Projected 5-YR Average		River Mile	Source/Diversion Flow (cfs)				Jordan River/State Canal Flow (cfs)			
#	Source/Diversion		Summer	Fall	Winter	Spring	Summer	Fall	Winter	Spring
1	Headwater - Utah Lake	51.4	709.0	16.0	16.0	501.0	709.0	16.0	16.0	501.0
2	Groundwater Segment 8	51.4 - 41.9	0.0	0.0	0.0	0.0	709.0	16.0	16.0	501.0
3	Utah Lake Distribution Canal	41.9	-125.0	0.0	0.0	-81.0	584.0	16.0	16.0	420.0
4	Utah and Salt Lake Canal	41.8	-224.0	0.0	0.0	-145.0	360.0	16.0	16.0	275.0
5	East Jordan & Draper Canal	41.8	-222.0	0.0	0.0	-150.0	138.0	16.0	16.0	125.0
6	Jordan & Salt Lake Canal	64.7	-35.0	0.0	0.0	-30.0	103.0	16.0	16.0	95.0
7	South Jordan Canal	64.7	-63.0	0.0	0.0	-85.0	40.0	16.0	16.0	10.0
8	Groundwater Segment 7	41.9 - 37.6	22.6	22.0	17.3	20.9	62.6	38.0	33.3	30.9
9	Jordan Basin WRF	36.5	23.2	23.2	23.2	23.2	85.8	61.2	56.5	54.1
10	Comer Canyon Creek	35.5	2.0	0.0	0.0	3.0	87.8	61.2	56.5	57.1
11	Beckstead Ditch	33.2	-5.0	0.0	0.0	0.0	80.8	61.2	56.5	54.1
12	Butterfield/Midas Creek	31.5	1.0	1.0	1.0	2.0	81.8	62.2	57.5	56.1
13	Willow Creek	30.8	3.0	1.0	1.0	3.0	84.8	63.2	58.5	59.1
14	Groundwater Segment 6	37.6 - 26.4	85.5	83.2	65.4	79.1	170.3	146.4	123.9	138.3
15	North Jordan Canal	28.8	-61.0	-73.0	-63.0	-62.0	109.3	73.4	60.9	76.3
16	Gardner Mill Race	28.8	-3.0	0.0	0.0	0.0	106.3	73.4	60.9	76.3
17	Dry Creek	28.6	1.0	0.0	0.0	2.0	107.3	73.4	60.9	78.3
18	9000 South Conduit	28.1	1.0	0.0	0.0	1.0	108.3	73.4	60.9	79.3
19	Bingham Creek	27.2	2.0	0.0	1.0	2.0	110.3	73.4	61.9	81.3
20	South Valley WRF	25.7	34.3	34.3	34.3	34.3	144.7	107.7	96.3	115.6
21	Little Cottonwood Creek	21.6	7.0	2.0	2.0	7.0	151.7	109.7	98.3	122.6
22	Groundwater Segment 5	26.4 - 24.9	10.1	9.8	7.7	9.3	161.8	119.5	106.0	132.0
23	Brighton Canal	21.2	-30.0	0.0	0.0	-20.0	131.8	119.5	106.0	112.0
24	Big Cottonwood Creek	20.6	15.0	8.0	13.0	16.0	146.8	127.5	119.0	128.0
25	Mill Creek	17.2	19.0	17.0	18.0	24.0	165.8	144.5	137.0	152.0
26	Central Valley WRF	17.2	86.9	86.9	86.9	86.9	252.7	231.5	223.9	238.9
27	Decker Lake Outlet	17.0	1.0	1.0	1.0	1.0	253.7	232.5	224.9	239.9
28	Groundwater Segment 4	24.9 - 15.8	14.2	14.2	14.2	14.2	267.9	246.7	239.1	254.1
29	Surplus Canal	16.0	-173.9	-183.6	-184.1	-137.1	94.0	63.0	55.0	117.0
30	1300 South Conduit	14.2	8.0	7.0	4.0	6.0	102.0	70.0	59.0	123.0
31	North Temple Conduit	11.4	1.0	0.0	1.0	2.0	103.0	70.0	60.0	125.0
32	Groundwater Segment 3	15.8 - 11.5	17.3	16.8	13.2	16.0	120.3	86.9	73.2	141.0
33	Groundwater Segment 2	11.5 - 7.1	11.1	10.8	8.5	10.3	131.4	97.7	81.7	151.3
34	South Davis South WWTP	4.8	5.3	5.3	5.3	5.3	136.6	102.9	87.0	156.5
35	Groundwater Segment 1	7.1 - 0.0	7.5	7.3	5.8	7.0	144.2	110.3	92.7	163.5
36	Bumham Dam	JR 1.7/SC 3.5	-94.2	-60.3	-27.8	-98.5	50.0	50.0	65.0	65.0
37	South Davis North WWTP	SC 0.6	11.1	11.1	11.1	11.1	61.2	61.1	76.1	76.2

Receiving and tributary water quality data were obtained from UDWQ and JRFBWQC monitoring sites. The average seasonal value was calculated for each constituent with available data in the receiving water for the period 2004 - 2014.

TMDL

The 303(d) list of impairments of the Jordan River and State Canal in *Utah's 2014 Integrated Report* (Utah DWQ 2014) is summarized in Table 4. The dissolved oxygen impairment in the lower Jordan River (below Surplus Canal) was addressed by the *Jordan River Total Maximum Daily Load Water Quality Study – Phase 1* (Cirrus Ecological Solutions and Stantec Consultants 2013), which identified organic matter as the pollutant of concern and recommended additional studies to determine the sources and allocation.

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Table 4: List of impairments of Jordan River and State Canal

Assessment Unit	Assessment Unit Description	Parameter
State Canal	State Canal from Farmington Bay to confluence with the Jordan River	Dissolved Oxygen
Jordan River-1	Jordan River from Farmington Bay upstream contiguous with the Davis County line	Dissolved Oxygen Bioassessment
Jordan River 2	Jordan River from Davis County line upstream to North Temple Street	Dissolved Oxygen E. coli
Jordan River-3	Jordan River from North Temple to 2100 South	Dissolved Oxygen
Jordan River-4	Jordan River from 2100 South to the confluence with Little Cottonwood Creek	E. coli Bioassessment
Jordan River-5	Jordan River from the confluence with Little Cottonwood Creek to 7800 South	Temperature Total Dissolved Solids
Jordan River-6	Jordan River from 7800 South to Bluffdale at 14600 South	Dissolved Oxygen Selenium Temperature Total Dissolved Solids
Jordan River-7	Jordan River from Bluffdale at 14600 South to Narrows	Temperature
Jordan River-8	Jordan River from Narrows to Utah Lake	Arsenic Total Dissolved Solids

Mixing Zone

The maximum allowable mixing zone is 15 minutes of travel time for acute conditions, not to exceed 50% of stream width, and 2,500 feet for chronic conditions, per UAC R317-2-5. Water quality standards must be met at the end of the mixing zone.

The actual length of the mixing zone was not determined; however, it was presumed to remain within the maximum allowable mixing zone dimensions for each discharge. Acute limits were calculated using 50% of the seasonal critical low flow.

Parameters of Concern

The parameters of concern considered in this wasteload allocation are total ammonia (TAN) and total recoverable metals. Due to ongoing studies related to the TMDL, this wasteload allocation does not address parameters related to dissolved oxygen, including biochemical oxygen demand (BOD), dissolved oxygen (DO), total nitrogen (TN), and total phosphorus (TP).

Water Quality Modeling

A QUAL2Kw model of the Jordan River was populated and calibrated as part of the TMDL study (Stantec Consulting 2010, UDWQ 2010). The model was subsequently validated to a synoptic survey conducted by UDWQ and the Jordan River/Farmington Bay Water Quality Council (JRFBWQC) during July 2014 (UDWQ 2015). The model validation identified areas for future improvement of the model; however, the model was considered suitable for application to the wasteload allocation for ammonia.

The TMDL model of the Jordan River extends 52.4 miles from the outlet of Utah Lake to Burton Dam. For the purposes of the WLA, the model was broken at Burnham Dam (approximately 1.7

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miles upstream of Burton Dam) and extended down State Canal to the Farmington Bay Waterfowl Management Area (approximately 3.5 miles downstream from Burnham Dam). The following point sources were added to the State Canal: A-1 Drain, South Davis Sewer District North WWTP, and outlet channel from Bountiful Pond (Mill Creek and Stone Creek). In addition, the Jordan Basin WRF discharge was added to the Jordan River, as this discharge was not active at the time of the TMDL model development.

The Jordan River WLA QUAL2Kw model was used for determining the WQBEL for ammonia. Effluent concentrations were adjusted up to the current permit limits so that water quality criteria were not exceeded in the receiving water. The current permit limits for DO and CBOD were used in the model and not modified due to the ongoing TMDL. Background condition for each plant was characterized by assuming each upstream plant was operating at average flow rate with average ammonia concentration in the effluent. For calculating the chronic ammonia criterion, fish early life stages (ELS) were assumed present during all seasons.

A simple mass balance spreadsheet tool was developed to calculate the WLA for conservative constituents such as metals. The limiting flow condition at each facility was the winter season, which was used for the allocation. Each plant was granted a full allocation at the point of discharge. Background condition for each plant was characterized by assuming each upstream plant was operating at the projected 5-year average flow rate with 80th percentile metal concentration in the effluent. Since in-stream and/or facility effluent concentrations were not available for chromium III, chromium VI, and cyanide, and the detection level was too high for mercury, effluent limits were not updated for these metals; therefore, the limits in the 2004 WLA are shown and monitoring should be required for these metals.

Since the critical low flows and design discharge remained the same as in the current WLA, the effluent limits for total residual chlorine (TRC) were not revised. TRC limits only apply to South Valley WRF, SDSD South WWTP and SDSD North WWTP.

The calibration, validation and wasteload models are available for review by request.

WET Limits

The percent of effluent in the receiving water in a fully mixed condition, and acute and chronic dilution in an incompletely mixed condition are calculated in the WLA in order to generate WET limits. The LC₅₀ (lethal concentration, 50%) percent effluent for acute toxicity and the IC₂₅ (inhibition concentration, 25%) percent effluent for chronic toxicity, as determined by the WET test, needs to be below the WET limits, as determined by the WLA. The WET limit for LC₅₀ is typically 100% effluent and does not need to be determined by the WLA.

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Table 5: WET Limits for IC₂₅

Season	Percent Effluent
Jordan Basin WRFr	41%
South Valley WRF	53%
Central Valley WRF	40%
SDSD South WWTP	7%
SDSD North WWTP	22%

Effluent Limits

The water quality based effluent limits determined as part of this combined wasteload allocation are summarized in Table 6.

Table 6: Water Quality Based Effluent Limits Summary

Effluent Constituent	Averaging Period	Jordan Basin	South Valley	Central Valley	SDSD South WWTP	SDSD North WWTP
Flow (MGD)	Monthly	15	50	75	4	12
Ammonia Acute (mg/L)	Daily					
Summer (Jul-Sep)		13.0	10.8	13.1	30.0	31.7
Fall (Oct-Dec)		12.6	9.0	16.4	40.0	16.2
Winter (Jan-Mar)		13.0	9.4	13.3	40.0	23.4
Spring (Apr-Jun)		10.9	7.4	25.1	30.0	26.8
Ammonia Chronic (mg/L)	Monthly					
Summer (Jul-Sep)		3.7	4.0	5.8	8.0 ^b	8.0 ^b
Fall (Oct-Dec)		5.6	4.0	7.2	7.5 ^b	7.5 ^b
Winter (Jan-Mar)		4.4	4.0	5.8	7.0 ^b	7.0 ^b
Spring (Apr-Jun)		4.8	4.5	8.5	12.0 ^b	12.0 ^b
TRC Acute (mg/L)	Daily					
Summer (Jul-Sep)		N/A	0.030	N/A	0.310	0.090
Fall (Oct-Dec)		N/A	0.027	N/A	0.180	0.060
Winter (Jan-Mar)		N/A	0.028	N/A	0.170	0.070
Spring (Apr-Jun)		N/A	0.027	N/A	0.070	0.060
DO (mg/L)	Minimum	5.0	5.0	5.0	5.0	5.0
BOD ₅ /CBOD ₅ (mg/L)	Monthly	BOD ₅	BOD ₅	CBOD ₅	BOD ₅	BOD ₅
Summer (Jul-Sep)		15.0	15.0	16.0	20.0	20.0
Fall (Oct-Dec)		15.0	15.0	20.0	25.0	25.0
Winter (Jan-Mar)		15.0	15.0	20.0	25.0	25.0
Spring (Apr-Jun)		15.0	15.0	20.0	25.0	25.0
BOD ₅ /CBOD ₅ (mg/L)	Weekly	BOD ₅	BOD ₅	CBOD ₅	BOD ₅	BOD ₅
Summer (Jul-Sep)		21.0	21.0	27.0	27.0	27.0
Fall (Oct-Dec)		21.0	21.0	28.0	35.0	35.0
Winter (Jan-Mar)		21.0	21.0	28.0	35.0	35.0
Spring (Apr-Jun)		21.0	21.0	28.0	35.0	35.0
TDS (mg/L) ¹	Daily	1,200	1,200	---	---	---
Temperature (deg C) ^a	Maximum	20.0	20.0	---	---	---

a: Limit due to impairment of receiving segment.

b: Chronic ammonia allocation for SDSD plants to be superseded by wasteload analysis with revised assumptions.

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QUAL2Kw rates, input and output are summarized in Appendix A. The WQBELs for conservative constituents are summarized in Appendix B. Models and supporting documentation are available for review upon request.

**Prepared by:
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Standards and Technical Services Section**

Files:

WLA Document: *jordan_river_potw_wla_2015_final_2016-01-27.docx*
QUAL2Kw Calibration Model: *jordan_aug2009_q2kw_calib_2010-8-26.xls*
QUAL2Kw Validation Model: *jordan_q2kw_synoptic_2014-07-22.xlsm*
QUAL2Kw Wasteload Model: *jordan_potw_q2kw_wla_2015.xlsm*
Metals Wasteload Model: *jordan_potw_metals_wla_2015.xlsx*

References:

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WASTELOAD ANALYSIS [WLA]

Date: 1/27/2016

Appendix A: QUAL2Kw Analysis for Ammonia

Discharging Facility: Jordan River POTWs
 Receiving Water: Jordan River and State Canal

Fully Mixed: No
 Acute River Width: 50%
 Chronic River Width: 100%

Modeling Information

A QUAL2Kw model was used to determine these effluent limits.

Current State water quality standards are required to be met under a variety of conditions including in-stream flows targeted to the 7-day, 10-year low flow (R317-2-9).

Other conditions used in the modeling effort reflect the environmental conditions expected at low stream flows.

Model Inputs

The following were utilized as inputs for the analysis.

Headwater - Utah Lake	Summer	Fall	Winter	Spring
Flow (cfs)	709.0	16.0	16.0	501.0
Temperature, Mean (deg C)	21.5	9.7	4.2	15.2
Temperature, Diel Range (deg C)	3.0	2.5	2.0	2.5
Specific Conductance (µmhos)	1635	1750	1729	1374
Inorganic Suspended Solids (mg/L)	73.5	21.7	17.1	40.4
Dissolved Oxygen, Mean (mg/L)	6.1	9.0	11.7	8.0
Dissolved Oxygen, Diel Range (mg/L)	2.5	2.0	1.5	2.0
CBOD ₅ (mg/L)	3.0	3.0	3.0	3.0
Organic Nitrogen (mg/L)	0.900	0.900	0.900	0.900
NH ₄ -Nitrogen (mg/L)	0.297	0.290	0.165	0.104
NO ₃ -Nitrogen (mg/L)	0.800	0.800	0.800	0.800
Organic Phosphorus (mg/L)	0.052	0.012	0.018	0.017
Inorganic Ortho-Phosphorus (mg/L)	0.045	0.035	0.040	0.040
Phytoplankton (µg/L)	27.3	9.0	15.0	8.1
Detritus [POM] (mg/L)	17.9	6.3	7.9	9.3
Alkalinity (mg/L)	188	192	213	200
pH	8.4	8.0	8.1	8.4

Discharge Information - Jordan Basin WRF

Chronic	Summer	Fall	Winter	Spring
Flow (MGD)	10.1	10.5	9.9	9.3
Temperature (deg C)	22.1	18.7	15.6	18.3
Specific Conductance (µmhos)	1791	1791	1791	1791
Inorganic Suspended Solids (mg/L)	1.5	1.5	1.5	1.5
Dissolved Oxygen (mg/L)	5.0	5.0	5.0	5.0
CBOD ₅ (mg/L)	15.0	15.0	15.0	15.0
Organic Nitrogen (mg/L)	0.500	0.500	0.500	0.500
NH ₄ -Nitrogen (mg/L)	0.158	0.158	0.158	0.158
NO ₃ -Nitrogen (mg/L)	7.800	7.800	7.800	7.800
Organic Phosphorus (mg/L)	0.080	0.080	0.080	0.080
Inorganic Ortho-Phosphorus (mg/L)	0.320	0.320	0.320	0.320
Phytoplankton (µg/L)	0.400	0.400	0.400	0.400
Detritus [POM] (mg/L)	0.5	0.5	0.5	0.5
Alkalinity (mg/L)	200	200	200	200
pH	7.5	7.5	7.5	7.5

Acute	Summer	Fall	Winter	Spring
Flow (MGD)	15.0	15.0	15.0	15.0
pH	8.8	7.6	7.6	7.8

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Discharge Information - South Valley WRF

Chronic	Summer	Fall	Winter	Spring
Flow (MGD)	21.7	20.7	20.2	20.3
Temperature (deg C)	22.0	18.1	14.4	18.0
Specific Conductance (µmhos)	1557	1487	1605	1517
Inorganic Suspended Solids (mg/L)	6.0	6.0	6.0	6.0
Dissolved Oxygen (mg/L)	5.0	5.0	5.0	5.0
CBOD ₅ (mg/L)	15.0	15.0	15.0	15.0
Organic Nitrogen (mg/L)	1.250	1.250	1.250	1.250
NH ₄ -Nitrogen (mg/L)	0.086	0.113	0.135	0.113
NO ₃ -Nitrogen (mg/L)	17.000	17.000	17.000	17.000
Organic Phosphorus (mg/L)	0.400	0.200	0.300	0.500
Inorganic Ortho-Phosphorus (mg/L)	2.700	3.100	2.800	2.700
Phytoplankton (µg/L)	0.000	0.000	0.000	0.000
Detritus [POM] (mg/L)	0.0	0.0	0.0	0.0
Alkalinity (mg/L)	191	169	169	180
pH	7.5	7.5	7.5	7.5
Acute	Summer	Fall	Winter	Spring
Flow (MGD)	50.0	50.0	50.0	50.0
pH	7.9	7.9	7.9	8.2

Discharge Information - Central Valley WRF

Chronic	Summer	Fall	Winter	Spring
Flow (MGD)	51.8	49.7	51.1	56.9
Temperature (deg C)	21.8	16.1	12.8	16.9
Specific Conductance (µmhos)	1335	1314	1403	1403
Inorganic Suspended Solids (mg/L)	5.5	5.5	5.5	5.5
Dissolved Oxygen (mg/L)	5.0	5.0	5.0	5.0
CBOD ₅ (mg/L)	27.0	28.0	28.0	28.0
Organic Nitrogen (mg/L)	2.000	2.000	2.000	2.000
NH ₄ -Nitrogen (mg/L)	1.247	1.269	2.266	0.990
NO ₃ -Nitrogen (mg/L)	12.500	12.500	12.500	12.500
Organic Phosphorus (mg/L)	0.200	0.200	0.400	0.300
Inorganic Ortho-Phosphorus (mg/L)	2.900	2.800	2.600	2.700
Phytoplankton (µg/L)	0.000	0.000	0.000	0.000
Detritus [POM] (mg/L)	0.0	0.0	0.0	0.0
Alkalinity (mg/L)	168	169	177	179
pH	7.3	7.4	7.2	7.2
Acute	Summer	Fall	Winter	Spring
Flow (MGD)	75.0	75.0	75.0	75.0
pH	7.5	7.6	7.6	7.7

Discharge Information - South Davis Sewer District South WWTP

Chronic	Summer	Fall	Winter	Spring
Flow (MGD)	4.0	4.0	4.0	4.0
Temperature (deg C)	23.0	16.7	12.6	18.7
Specific Conductance (µmhos)	2733	2722	2923	2808
Inorganic Suspended Solids (mg/L)	12.0	12.0	12.0	12.0
Dissolved Oxygen (mg/L)	5.0	5.0	5.0	5.0
CBOD ₅ (mg/L)	20.0	25.0	25.0	25.0
Organic Nitrogen (mg/L)	2.000	2.000	2.000	2.000
NH ₄ -Nitrogen (mg/L)	8.000	7.500	7.000	12.000
NO ₃ -Nitrogen (mg/L)	10.000	10.000	10.000	10.000
Organic Phosphorus (mg/L)	0.500	0.400	0.800	0.500
Inorganic Ortho-Phosphorus (mg/L)	1.100	1.000	1.000	1.200
Phytoplankton (µg/L)	0.000	0.000	0.000	0.000
Detritus [POM] (mg/L)	0.0	0.0	0.0	0.0
Alkalinity (mg/L)	296	294	334	300
pH	7.5	7.4	7.5	7.6
Acute	Summer	Fall	Winter	Spring
Flow (MGD)	4.0	4.0	4.0	4.0
pH	7.8	7.7	7.7	7.9

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Discharge Information - South Davis Sewer District North WWTP

	Chronic	Summer	Fall	Winter	Spring
Flow (MGD)		12.0	12.0	12.0	12.0
Temperature (deg C)		23.4	18.2	12.4	17.4
Specific Conductance (µmhos)		1856	2047	2032	1908
Inorganic Suspended Solids (mg/L)		4.0	4.0	4.0	4.0
Dissolved Oxygen (mg/L)		5.0	5.0	5.0	5.0
CBOD ₅ (mg/L)		20.0	25.0	25.0	25.0
Organic Nitrogen (mg/L)		3.500	3.500	3.500	3.500
NH ₄ -Nitrogen (mg/L)		8.000	7.500	7.000	12.000
NO ₃ -Nitrogen (mg/L)		8.000	8.000	8.000	8.000
Organic Phosphorus (mg/L)		0.822	0.807	1.607	0.666
Inorganic Ortho-Phosphorus (mg/L)		1.169	1.702	1.698	1.386
Phytoplankton (µg/L)		0.000	0.000	0.000	0.000
Detritus [POM] (mg/L)		14.0	14.0	14.0	14.0
Alkalinity (mg/L)		300	300	300	300
pH		7.1	7.2	7.2	7.3

	Acute	Summer	Fall	Winter	Spring
Flow (MGD)		12.0	12.0	12.0	12.0
pH		7.5	7.5	7.4	7.5

Tributary - Little Cottonwood Creek

	Summer	Fall	Winter	Spring
Flow (cfs)	7.0	2.0	2.0	7.0
Temperature, Mean (deg C)	17.9	6.4	4.4	9.2
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	1399	1348	1944	504
Inorganic Suspended Solids (mg/L)	27.1	8.4	6.6	25.1
Dissolved Oxygen, Mean (mg/L)	8.1	9.9	11.5	10.6
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	3.2	3.2	4.5	3.0
Organic Nitrogen (mg/L)	0.650	0.650	0.650	0.650
NH ₄ -Nitrogen (mg/L)	0.100	0.100	0.100	0.100
NO ₃ -Nitrogen (mg/L)	0.700	0.700	0.700	0.700
Organic Phosphorus (mg/L)	0.020	0.010	0.010	0.020
Inorganic Ortho-Phosphorus (mg/L)	0.040	0.030	0.030	0.030
Phytoplankton (µg/L)	25.0	4.7	11.5	11.1
Detritus [POM] (mg/L)	8.3	7.8	10.3	7.8
Alkalinity (mg/L)	173	239	218	123
pH	8.3	8.0	7.9	8.2

Tributary - Big Cottonwood Creek

	Summer	Fall	Winter	Spring
Flow (cfs)	15.0	8.0	13.0	16.0
Temperature, Mean (deg C)	18.1	7.7	5.7	9.4
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	1241	1083	1554	449
Inorganic Suspended Solids (mg/L)	20.7	7.0	8.3	21.5
Dissolved Oxygen, Mean (mg/L)	8.7	10.2	11.1	10.3
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	3.0	3.0	4.0	3.0
Organic Nitrogen (mg/L)	0.600	0.600	0.600	0.600
NH ₄ -Nitrogen (mg/L)	0.060	0.060	0.060	0.060
NO ₃ -Nitrogen (mg/L)	0.500	0.500	0.500	0.500
Organic Phosphorus (mg/L)	0.010	0.005	0.010	0.010
Inorganic Ortho-Phosphorus (mg/L)	0.040	0.025	0.030	0.030
Phytoplankton (µg/L)	19.4	5.6	9.1	7.5
Detritus [POM] (mg/L)	7.8	9.1	10.3	7.6
Alkalinity (mg/L)	186	197	224	121
pH	8.4	8.1	8.1	8.2

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Tributary - Mill Creek above CVWRF	Summer	Fall	Winter	Spring
Flow (cfs)	9.5	6.4	7.6	14.0
Temperature, Mean (deg C)	18.2	7.9	8.2	12.1
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	1128	1049	1028	902
Inorganic Suspended Solids (mg/L)	13.6	16.7	12.9	11.9
Dissolved Oxygen, Mean (mg/L)	8.0	9.7	11.9	9.4
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	3.0	3.0	3.0	3.7
Organic Nitrogen (mg/L)	0.600	0.600	0.600	0.600
NH ₄ -Nitrogen (mg/L)	0.050	0.050	0.050	0.050
NO ₃ -Nitrogen (mg/L)	1.500	1.500	1.500	1.500
Organic Phosphorus (mg/L)	0.020	0.025	0.015	0.005
Inorganic Ortho-Phosphorus (mg/L)	0.040	0.025	0.030	0.045
Phytoplankton (µg/L)	8.0	2.2	4.4	3.1
Detritus [POM] (mg/L)	7.5	5.7	12.2	8.4
Alkalinity (mg/L)	218	244	238	200
pH	7.9	7.9	7.8	7.9

Tributary - Decker Lake Outlet	Summer	Fall	Winter	Spring
Flow (cfs)	8.5	8.5	8.5	8.5
Temperature, Mean (deg C)	20.2	6.8	5.0	16.1
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	1777	2248	2387	1661
Inorganic Suspended Solids (mg/L)	48.1	36.0	14.6	38.1
Dissolved Oxygen, Mean (mg/L)	6.5	10.7	13.7	8.0
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	4.6	3.1	3.2	4.4
Organic Nitrogen (mg/L)	0.930	0.930	0.930	0.930
NH ₄ -Nitrogen (mg/L)	0.140	0.140	0.140	0.140
NO ₃ -Nitrogen (mg/L)	1.200	1.200	1.200	1.200
Organic Phosphorus (mg/L)	0.030	0.020	0.025	0.040
Inorganic Ortho-Phosphorus (mg/L)	0.070	0.050	0.040	0.050
Phytoplankton (µg/L)	19.0	19.0	19.0	19.0
Detritus [POM] (mg/L)	10.4	5.5	11.7	8.2
Alkalinity (mg/L)	235	255	252	214
pH	8.2	8.3	8.3	8.2

Tributary - 1300 South Drain	Summer	Fall	Winter	Spring
Flow (cfs)	2.0	1.5	1.0	1.5
Temperature, Mean (deg C)	19.5	12.3	9.0	12.3
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	1106	1061	1632	605
Inorganic Suspended Solids (mg/L)	11.0	11.0	11.0	11.0
Dissolved Oxygen, Mean (mg/L)	6.9	6.9	6.9	6.9
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	2.3	2.3	2.3	2.3
Organic Nitrogen (mg/L)	0.370	0.370	0.370	0.370
NH ₄ -Nitrogen (mg/L)	0.020	0.020	0.020	0.020
NO ₃ -Nitrogen (mg/L)	0.850	0.850	0.850	0.850
Organic Phosphorus (mg/L)	0.050	0.050	0.050	0.050
Inorganic Ortho-Phosphorus (mg/L)	0.000	0.000	0.000	0.000
Phytoplankton (µg/L)	2.5	0.9	0.8	0.7
Detritus [POM] (mg/L)	3.4	3.4	3.4	3.4
Alkalinity (mg/L)	210	210	210	210
pH	8.1	8.1	8.1	8.1

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Tributary - 900 South Drain	Summer	Fall	Winter	Spring
Flow (cfs)	6.0	5.5	3.0	4.5
Temperature, Mean (deg C)	20.9	12.6	9.0	12.6
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	1106	1061	1632	605
Inorganic Suspended Solids (mg/L)	31.7	31.7	31.7	31.7
Dissolved Oxygen, Mean (mg/L)	7.5	7.5	7.5	7.5
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	2.1	2.1	2.1	2.1
Organic Nitrogen (mg/L)	0.600	0.600	0.600	0.600
NH ₄ -Nitrogen (mg/L)	0.090	0.090	0.090	0.090
NO ₃ -Nitrogen (mg/L)	1.750	1.750	1.750	1.750
Organic Phosphorus (mg/L)	0.110	-0.890	-1.890	-2.890
Inorganic Ortho-Phosphorus (mg/L)	0.150	1.150	2.150	3.150
Phytoplankton (µg/L)	2.5	0.9	0.8	0.7
Detritus [POM] (mg/L)	8.1	8.1	8.1	8.1
Alkalinity (mg/L)	250	250	250	250
pH	7.9	7.9	7.9	7.9
Tributary - North Temple Drain	Summer	Fall	Winter	Spring
Flow (cfs)	1.0	0.0	1.0	2.0
Temperature, Mean (deg C)	19.3	9.1	9.6	10.7
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	1106	1061	1632	605
Inorganic Suspended Solids (mg/L)	4.8	1.9	5.5	12.8
Dissolved Oxygen, Mean (mg/L)	7.9	9.0	8.9	9.5
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	3.0	3.3	3.0	3.2
Organic Nitrogen (mg/L)	0.700	0.700	0.700	0.700
NH ₄ -Nitrogen (mg/L)	0.050	0.050	0.050	0.050
NO ₃ -Nitrogen (mg/L)	1.200	1.200	1.200	1.200
Organic Phosphorus (mg/L)	0.010	0.005	0.000	0.010
Inorganic Ortho-Phosphorus (mg/L)	0.030	0.025	0.020	0.040
Phytoplankton (µg/L)	2.5	0.9	0.8	0.7
Detritus [POM] (mg/L)	2.5	2.5	2.5	2.5
Alkalinity (mg/L)	238	239	252	222
pH	8.0	8.5	8.1	8.3
Minor Tributaries - Quality	Summer	Fall	Winter	Spring
Temperature, Mean (deg C)	19.6	12.9	12.3	14.8
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	1671	2022	2281	1614
Inorganic Suspended Solids (mg/L)	63.3	31.2	18.8	86.8
Dissolved Oxygen, Mean (mg/L)	7.6	8.9	9.7	9.4
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	3.0	3.0	3.0	3.0
Organic Nitrogen (mg/L)	0.930	0.930	0.930	0.930
NH ₄ -Nitrogen (mg/L)	0.070	0.070	0.070	0.070
NO ₃ -Nitrogen (mg/L)	3.200	3.200	3.200	3.200
Organic Phosphorus (mg/L)	0.045	0.020	0.020	0.085
Inorganic Ortho-Phosphorus (mg/L)	0.055	0.050	0.040	0.050
Phytoplankton (µg/L)	0.0	0.0	0.0	0.0
Detritus [POM] (mg/L)	10.9	5.0	7.2	10.6
Alkalinity (mg/L)	252	325	362	277
pH	8.1	8.1	8.0	7.9
Minor Tributaries - Flow (MGD)	Summer	Fall	Winter	Spring
Corner Canyon Creek	2.0	0.0	0.0	3.0
Midas Creek (Butterfield)	1.0	1.0	1.0	2.0
Willow Creek	3.0	1.0	1.0	3.0
Dry Creek	1.0	0.0	0.0	2.0
9000 South Conduit	1.0	0.0	0.0	1.0
Bingham Creek	2.0	0.0	0.0	2.0

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Diversions - Flow (cfs)	Summer	Fall	Winter	Spring
Jordan Valley Pump Station	-14.5	-13.0	-13.0	-14.5
Utah Lake Distribution Canal	-125.0	0.0	0.0	-81.0
Utah & Salt Lake Canal	-224.0	0.0	0.0	-145.0
East Jordan & Draper Canal	-222.0	0.0	0.0	-150.0
South Jordan Canal	-63.0	0.0	0.0	-85.0
Jordan & Salt Lake Canal	-35.0	0.0	0.0	-30.0
Beckstead Ditch	-5.0	0.0	0.0	0.0
North Jordan Canal	-61.0	-73.0	-63.0	-62.0
Gardner Mill Race	-3.0	0.0	0.0	0.0
Brighton Canal	-30.0	0.0	0.0	-20.0
Surplus Canal	-239.2	-249.7	-274.2	-207.7
Jordan River at Burnham Dam	-76.0	-43.0	-17.5	-83.0

Groundwater - Quality	Summer	Fall	Winter	Spring
Temperature, Mean (deg C)	16.0	16.0	16.0	16.0
Specific Conductance (µmhos)	2000	2000	2000	2000
Inorganic Suspended Solids (mg/L)	0.0	0.0	0.0	0.0
Dissolved Oxygen, Mean (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	2.0	2.0	2.0	2.0
Organic Nitrogen (mg/L)	0.500	0.500	0.500	0.500
NH ₄ -Nitrogen (mg/L)	0.500	0.500	0.500	0.500
NO ₃ -Nitrogen (mg/L)	2.000	2.000	2.000	2.000
Organic Phosphorus (mg/L)	0.050	0.050	0.050	0.050
Inorganic Ortho-Phosphorus (mg/L)	0.100	0.100	0.100	0.100
Phytoplankton (µg/L)	0.0	0.0	0.0	0.0
Detritus [POM] (mg/L)	0.0	0.0	0.0	0.0
Alkalinity (mg/L)	300	300	300	300
pH	8.0	8.0	8.0	8.0

Groundwater - Flow (cfs)	Summer	Fall	Winter	Spring
Segment 8	12.9	12.9	12.9	12.9
Segment 7	21.5	21.5	21.5	21.5
Segment 6	81.2	81.2	81.2	81.2
Segment 5	9.6	9.6	9.6	9.6
Segment 4	14.2	14.2	14.2	14.2
Segment 3	16.4	16.4	16.4	16.4
Segment 2	0.0	0.0	0.0	0.0
Segment 1	0.0	0.0	0.0	0.0

All model numerical inputs, intermediate calculations, outputs and graphs are available for discussion, inspection and copy at the Division of Water Quality.

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Effluent Limitations

Effluent Limitations based upon Water Quality Standards for Ammonia

In-stream criteria of downstream segments for Ammonia will be met with an effluent limitation as follows:

	Chronic	Standard	Summer	Fall	Winter	Spring
Flow (MGD)		N/A				
Jordan Basin WRF			15.0	15.0	15.0	15.0
South Valley WRF			50.0	50.0	50.0	50.0
Central Valley WRF			75.0	75.0	75.0	75.0
SDSD South WWTP			4.0	4.0	4.0	4.0
SDSD North WWTP			12.0	12.0	12.0	12.0
NH4-Nitrogen (mg/L)		Varies				
Jordan Basin WRF			3.7	5.6	4.4	4.8
South Valley WRF			4.0	4.0	4.0	4.5
Central Valley WRF			5.8	7.2	5.8	8.5
SDSD South WWTP			8.0	7.5	7.0	12.0
SDSD North WWTP			8.0	7.5	7.0	12.0
	Acute	Standard	Summer	Fall	Winter	Spring
Flow (MGD)		N/A				
Jordan Basin WRF			15.0	15.0	15.0	15.0
South Valley WRF			50.0	50.0	50.0	50.0
Central Valley WRF			75.0	75.0	75.0	75.0
SDSD South WWTP			4.0	4.0	4.0	4.0
SDSD North WWTP			12.0	12.0	12.0	12.0
NH4-Nitrogen (mg/L)		Varies				
Jordan Basin WRF			13.0	12.6	13.0	10.9
South Valley WRF			10.6	8.9	9.4	7.2
Central Valley WRF			13.1	16.4	13.3	25.1
SDSD South WWTP			30.0	40.0	40.0	30.0
SDSD North WWTP			31.7	16.2	23.4	26.8

Summary Comments

The mathematical modeling and best professional judgement indicate that violations of receiving water beneficial uses with their associated water quality standards, including important downstream segments, will not occur for the evaluated parameters of concern as discussed above if the effluent limitations indicated above are met.

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Coefficients and Other Model Information

<i>Parameter</i>	<i>Value</i>	<i>Units</i>
<i>Stoichiometry:</i>		
Carbon	40	gC
Nitrogen	7.2	gN
Phosphorus	1	gP
Dry weight	100	gD
Chlorophyll	1	gA
<i>Inorganic suspended solids:</i>		
Settling velocity	0.001	m/d
<i>Oxygen:</i>		
Reaeration model	Internal	
Temp correction	1.024	
Reaeration wind effect	None	
O2 for carbon oxidation	2.69	gO2/gC
O2 for NH4 nitrification	4.57	gO2/gN
Oxygen inhib model CBOD oxidation	Exponential	
Oxygen inhib parameter CBOD oxidation	0.60	L/mgO2
Oxygen inhib model nitrification	Exponential	
Oxygen inhib parameter nitrification	0.60	L/mgO2
Oxygen enhance model denitrification	Exponential	
Oxygen enhance parameter denitrification	0.60	L/mgO2
Oxygen inhib model phyto resp	Exponential	
Oxygen inhib parameter phyto resp	0.60	L/mgO2
Oxygen enhance model bot alg resp	Exponential	
Oxygen enhance parameter bot alg resp	0.60	L/mgO2
<i>Slow CBOD:</i>		
Hydrolysis rate	0	/d
Temp correction	1.047	
Oxidation rate	0.2	/d
Temp correction	1.047	
<i>Fast CBOD:</i>		
Oxidation rate	10	/d
Temp correction	1.047	
<i>Organic N:</i>		
Hydrolysis	0.4	/d
Temp correction	1.07	
Settling velocity	0.05	m/d
<i>Ammonium:</i>		
Nitrification	2	/d
Temp correction	1.07	
<i>Nitrate:</i>		
Denitrification	0.05	/d
Temp correction	1.07	
Sed denitrification transfer coeff	0.05	m/d
Temp correction	1.07	
<i>Organic P:</i>		
Hydrolysis	0.05	/d
Temp correction	1.07	
Settling velocity	0.05	m/d
<i>Inorganic P:</i>		
Settling velocity	0.5	m/d
Sed P oxygen attenuation half sat constant	0.05	mgO2/L

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Phytoplankton:

Max Growth rate	2	/d
Temp correction	1.07	
Respiration rate	0.1	/d
Temp correction	1.07	
Death rate	0.1	/d
Temp correction	1	
Nitrogen half sat constant	15	ugN/L
Phosphorus half sat constant	2	ugP/L
Inorganic carbon half sat constant	1.30E-05	moles/L
Phytoplankton use HCO3- as substrate	Yes	
Light model	Smith	
Light constant	57.6	langleys/d
Ammonia preference	25	ugN/L
Settling velocity	0.05	m/d

Bottom Plants:

Growth model	Zero-order	
Max Growth rate	50	gD/m2/d or /d
Temp correction	1.07	
First-order model carrying capacity	50	gD/m2
Basal respiration rate	0.042	/d
Photo-respiration rate parameter	0.389	unitless
Temp correction	1.07	
Excretion rate	0.1	/d
Temp correction	1.05	
Death rate	0.1	/d
Temp correction	1.07	
External nitrogen half sat constant	163	ugN/L
External phosphorus half sat constant	48	ugP/L
Inorganic carbon half sat constant	1.30E-05	moles/L
Bottom algae use HCO3- as substrate	Yes	
Light model	Half saturation	
Light constant	50	langleys/d
Ammonia preference	1	ugN/L
Subsistence quota for nitrogen	30	mgN/gD
Subsistence quota for phosphorus	0.4	mgP/gD
Maximum uptake rate for nitrogen	447	mgN/gD/d
Maximum uptake rate for phosphorus	114	mgP/gD/d
Internal nitrogen half sat ratio	2.9	
Internal phosphorus half sat ratio	1.8	
Nitrogen uptake water column fraction	1	
Phosphorus uptake water column fraction	1	

Detritus (POM):

Dissolution rate	0.1	/d
Temp correction	1.07	
Settling velocity	0.1	m/d

pH:

Partial pressure of carbon dioxide	347	ppm
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TRC:

Decay rate	0.8	/d
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Atmospheric Inputs:

	Summer	Fall	Winter	Spring
Min. Air Temperature, F	61.9	29.9	24.9	46.3
Max. Air Temperature, F	90.4	50.0	43.4	72.0
Dew Point, Temp., F	58.6	35.0	30.3	48.5
Wind, ft./sec. @ 21 ft.	9.8	7.5	7.6	9.2
Cloud Cover, %	10%	10%	10%	10%

WASTELOAD ANALYSIS [WLA]

Date: 3/10/2016

Appendix B: Mass Balance Mixing Analysis for Conservative Constituents

Discharging Facility: Jordan River POTWs
Receiving Water: Jordan River and State Canal

Fully Mixed: NO
Acute River Width: 50%
Chronic River Width: 100%

Modeling Information

A mass balance model was used to determine these effluent limits.

Current State water quality standards are required to be met under a variety of conditions including in-stream flows targeted to the 7-day, 10-year low flow (R317-2-9).

Other conditions used in the modeling effort reflect the environmental conditions expected at low stream flows.

Winter season was considered limiting conditions.

Model Inputs

The following were utilized as inputs for the analysis.

Discharge (MGD)	Design	Projected 5-YR Ave
Jordan Basin WRF	15	15
South Valley WRF	50	22.2
Central Valley WRF	75	56.2
SDSD South WWTP	4	3.4
SDSD North WWTP	12	7.2

Flow and Hardness		Jordan River/State Canal Flow (cfs)				Hardness (mg/L)	
Source	Type	Summer	Fall	Winter	Spring	Source	River
Headwater - Utah Lake	Source	709.0	16.0	16.0	501.0	381.3	381.3
Groundwater Segment 8	Source	709.0	16.0	16.0	501.0	300.0	381.3
Utah Lake Distribution Canal	Diversion	584.0	16.0	16.0	420.0		381.3
Utah and Salt Lake Canal	Diversion	360.0	16.0	16.0	275.0		381.3
East Jordan & Draper Canal	Diversion	138.0	16.0	16.0	125.0		381.3
Jordan & Salt Lake Canal	Diversion	103.0	16.0	16.0	95.0		381.3
South Jordan Canal	Diversion	40.0	16.0	16.0	10.0		381.3
Groundwater Segment 7	Source	62.6	38.0	33.3	30.9	300.0	339.1
Jordan Basin WRF	Source	85.8	61.2	56.5	54.1	294.2	345.6
Corner Canyon Creek	Source	87.8	61.2	56.5	57.1	300.0	381.3
Becksiead Ditch	Diversion	30.0	31.2	56.5	54.1		345.6
Butterfield/Midas Creek	Source	81.8	62.2	57.5	56.1	743.0	352.5
Willow Creek	Source	84.8	63.2	58.5	59.1	300.0	351.6
Groundwater Segment 6	Source	170.3	146.4	123.9	138.3	300.0	324.3
North Jordan Canal	Diversion	109.3	73.4	60.9	76.3		351.6
Gardner Mill Race	Diversion	106.3	73.4	60.9	76.3		351.6
Dry Creek	Source	107.3	73.4	60.9	78.3	300.0	351.6
9000 South Conduit	Source	108.3	73.4	60.9	79.3	300.0	351.6
Bingham Creek	Source	110.3	73.4	61.9	81.3	617.9	355.9
South Valley WRF	Source	144.7	107.7	96.3	115.6	294.2	333.9
Little Cottonwood Creek	Source	151.7	109.7	98.3	122.6	296.4	333.1
Groundwater Segment 5	Source	161.8	119.5	106.0	132.0	300.0	330.7
Brighton Canal	Diversion	131.8	119.5	106.0	112.0		330.7
Big Cottonwood Creek	Source	146.8	127.5	119.0	128.0	270.5	324.1
Mill Creek	Source	165.8	144.5	137.0	152.0	367.5	329.8
Central Valley WRF	Source	252.7	231.5	223.9	238.9	290.8	314.7
Decker Lake Outlet	Source	253.7	232.5	224.9	239.9	408.4	315.1
Groundwater Segment 4	Source	267.9	246.7	239.1	254.1	300.0	314.2
Surplus Canal	Diversion	94.0	63.0	55.0	117.0		314.2
1300 South Conduit	Source	102.0	70.0	59.0	123.0	300.0	313.2
North Temple Conduit	Source	103.0	70.0	60.0	125.0	344.1	313.8
Groundwater Segment 3	Source	120.3	86.9	73.2	141.0	300.0	311.3
Groundwater Segment 2	Source	131.4	97.7	81.7	151.3	300.0	310.1
South Davis South WWTP	Source	136.6	102.9	87.0	156.5	355.5	312.8
Groundwater Segment 1	Source	144.2	110.3	92.7	163.5	300.0	312.0
Burnham Dam	Diversion	50.0	50.0	65.0	65.0		312.0
South Davis North WWTP	Source	61.2	61.1	76.1	76.2	355.5	318.4

Effluent Limitations

Total Recoverable Metals (ug/L)

Facility	Metal	Chronic	Acute	Metal	Chronic	Acute
Jordan Basin	Aluminum	N/A	1,276	Iron	N/A	1,709
South Valley	Aluminum	N/A	1,045	Iron	N/A	1,395
Central Valley	Aluminum	N/A	1,184	Iron	N/A	1,575
South Davis South Plant	Aluminum	N/A	5,597	Iron	N/A	7,399
South Davis North Plant	Aluminum	N/A	2,035	Iron	N/A	2,691
Jordan Basin	Arsenic ^a	356	167	Lead	36.1	617
South Valley	Arsenic ^a	268	139	Lead	24.5	470
Central Valley	Arsenic ^a	323	157	Lead	28.6	531
South Davis South Plant	Arsenic ^a	2,096	743	Lead	183.9	2,586
South Davis North Plant	Arsenic ^a	661	268	Lead	60.4	970
Jordan Basin	Cadmium	1.5	11.9	Mercury ^b	0.035	0.405
South Valley	Cadmium	1.1	9.2	Mercury ^b	0.026	0.328
Central Valley	Cadmium	1.3	10.4	Mercury ^b	0.028	0.400
South Davis South Plant	Cadmium	7.8	50.1	Mercury ^b	0.361	4.685
South Davis North Plant	Cadmium	2.5	18.8	Mercury ^b	0.099	1.249
Jordan Basin	Chromium III ^b	651	9,178	Nickel	359	2,153
South Valley	Chromium III ^b	462	7,060	Nickel	250	1,685
Central Valley	Chromium III ^b	494	8,123	Nickel	294	1,902
South Davis South Plant	Chromium III ^b	6,406	71,450	Nickel	1,912	9,179
South Davis North Plant	Chromium III ^b	1,759	20,672	Nickel	621	3,420
Jordan Basin	Chromium VI ^b	24.3	27.4	Selenium	9.7	30.7
South Valley	Chromium VI ^b	19.3	23.1	Selenium	7.6	25.3
Central Valley	Chromium VI ^b	20.4	26.0	Selenium	8.7	28.4
South Davis South Plant	Chromium VI ^b	217.1	197.8	Selenium	52.0	132.5
South Davis North Plant	Chromium VI ^b	62.5	60.0	Selenium	16.8	48.4
Jordan Basin	Chromium ^a	N/A	170.3	Silver	N/A	48.0
South Valley	Chromium ^a	N/A	139.1	Silver	N/A	35.9
Central Valley	Chromium ^a	N/A	157.7	Silver	N/A	40.2
South Davis South Plant	Chromium ^a	N/A	746.7	Silver	N/A	195.2
South Davis North Plant	Chromium ^a	N/A	270.9	Silver	N/A	75.1
Jordan Basin	Copper	63.5	70.7	Zinc	816	543
South Valley	Copper	43.6	55.0	Zinc	569	425
Central Valley	Copper	49.7	61.0	Zinc	651	470
South Davis South Plant	Copper	309.6	285.0	Zinc	4,149	2,190
South Davis North Plant	Copper	102.0	108.2	Zinc	1,364	832
Jordan Basin	Cyanide ^b	15.1	42.9			
South Valley	Cyanide ^b	11.4	35.0			
Central Valley	Cyanide ^b	12.2	40.3			
South Davis South Plant	Cyanide ^b	354.6	354.6			
South Davis North Plant	Cyanide ^b	43.3	102.6			

a: Acute limit is to meet agricultural beneficial use

b: Limits are from 2004 WLA; monitoring required to update.

ATTACHMENT 3

Reasonable Potential Analysis

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REASONABLE POTENTIAL ANALYSIS

After working with Central Valley on the metals it was shown that the issues with some of the metals were related to either the lack of sample data and/or the detection level for the metal was not sensitive enough. Central Valley has worked to address the detection level issue and increase sampling on some of the metals. Central Valley also supplied the results for metals sampling from as far back as April 2009 through December 2015. The data was organized into a single table in a spreadsheet for review. A screening of the data showed that a more detailed RP review for Cyanide, Cadmium, Chromium, Copper, Silver, Selenium, and Mercury was required. As a result the RP model will be run on the most recent data when the detection limit has been reduced.

The RP model was run on Cadmium using the most recent data back through September 2014 when the detection level for Cadmium was improved. The model reported that there was no a Reasonable Potential for Cadmium. As a result, no changes to sampling or additional limits will be included for Cadmium. (Outcome C from RP Guide)

The RP model was run on Chromium using data back through 2014. Improvements at the lab did not focus on improving the detection limit for Chromium. The RP for Chromium is being run using the acute and chronic values for Chrome IV. During discussion regarding the merits of sampling and reporting for Chrome III, Chrome VI and Chromium it was determined that since Chrome III and VI are subsets of total Chromium, Chrome III is calculated not directly measured, Chrome VI has a more conservative limit that this would be the most conservative approach and not require additional sampling and analysis. The model reported that there was no a Reasonable Potential for Chromium. As a result, no changes to sampling or additional limits will be included for Chromium. (Outcome C from RP Guide)

The RP model was run on Copper using the most recent data back through 2014. Improvements at the lab did not focus on improving the detection limit for Copper. The Data was then evaluated using EPA ProUCL model, and an outlier was identified. This was the data for December 15, 014 (0.106899224 mg/L). This point was excluded from the set and the RP model was run. The model reported that there is a Reasonable Potential for chronic water quality criteria for Copper. As a result, an average monthly effluent limit for Copper will be included. (Outcome A from RP Guide)

The RP model was run on Silver using the most recent data back through 2014. Upon Review of the data by Central Valley they discovered they had inadvertently included data for another parameter as data for silver. Further evaluation with corrected data indicated there were no outliers and no acute or chronic RP for silver. As a result, no changes to sampling or additional limits will be included for Silver. (Outcome C from RP Guide)

The RP model was run on Selenium using the most recent data back through 2014. Improvements at the lab did not focus on improving the detection limit for Selenium. The Data was then evaluated using EPA ProUCL model, and an outlier was identified. This was the data for March 18, 014 (0.02410962 mg/L). This point was excluded from the set and the RP model was run. The model reported that there is not a Reasonable Potential for Selenium at a 95%

confidence interval, but that there is a Reasonable Potential for chronic water quality criteria for Selenium at a 99% confidence interval. As a result, additional monitoring for Selenium will be included. (Outcome B from RP Guide)

The RP model was run on Mercury using the most recent data back through 2014. Improvements at the lab did not focus on improving the detection limit for Mercury. The model reported that there is not a Reasonable Potential for the acute limit for Mercury, but that there is Reasonable Potential for the chronic limit. Further review of the data shows that the majority of the results were at the method detection limit (MDL) for the lab at Central Valley. The Central Valley lab uses EPA Method 200.8 with an MDL of 0.0001 mg/l (0.14 µg/l), the chronic limit is 0.000012 mg/l (0.012 µg/l). As a result, the Mercury data cannot reliably indicate a low enough value for us to determine if Central Valley does or does not have a chronic RP for Mercury.

Other analytical methods have an MDL lower than the current method used by the lab. As a result the minimum monitoring frequency and reporting for Mercury will be increased from quarterly to monthly, and a requirement that a lower MDL be achieved. (Outcome B from RP Guide)

The RP model was run on Cyanide using the data back through 2009. Cyanide has only been analyzed on a Quarterly basis resulting in much fewer data points than the other metals; 27 samples for Cyanide versus 91 samples for Cadmium and 120 samples for the rest. Improvements at the lab resulted in the improvement of the MDL for Cyanide, but it is still too close to the chronic and acute WQBEL⁵ with too few data points at the improved MDL for the model to consider them and balance out the previous MDL⁶. For this reason all the samples were used. (Outcome C from RP Guide)

The model reported that there is a Reasonable Potential for the both acute and chronic limits for Cyanide. With the limitations on the improved MDL data set, the Cyanide data cannot reliably indicate a low enough value for us to determine if Central Valley does or does not have a RP for Cyanide. As a result these issues related to the data, the minimum monitoring frequency and reporting for Cyanide will be increased from quarterly to monthly. (Outcome C from RP Guide)

A Summary of the RP Model inputs and outputs are summarized in the tables below.

⁵ Acute WQBEL 0.0225 mg/l, Chronic WQBEL 0.0053 mg/l

⁶ 22 samples at 0.0199 mg/l MDL compared with 5 samples at 0.005 mg/l MDL

Initial Metals Reasonable Potential Screening

		Effluent														
		Metal	Cyanide	Iron	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Silver	Zinc	Aluminum	Molybdenum	Selenium	Mercury
ARP Val		0.0225	1.025	0.350	0.006	0.016	0.038	0.207	1.186	0.021	0.296	0.771		0.019	0.0025	
CRP Val		0.0053		0.157	0.001	0	0.023	0.008	0.135		0.305	0		0.005	1.2E-05	
Metals, mg/L	Fall	ND		0.012	ND	0.028	0.035	ND	0.08	ND	0.104		ND	0.012	0.0002	
	2010	Win	ND		0.011	ND	0.01	0.031	ND	0.016	ND	0.058		0.004	0.013	0.0006
		Spr	ND		0.013	ND	0.01	0.011	ND	ND	ND	0.044		ND	0.01	ND
		Sum	ND		0.015	ND	0.01	0.011	ND	ND	ND	0.073		ND	0.01	0.0002
		Fall	ND		0.015	ND	0.013	0.048	ND	0.07	ND	0.07		ND	0.012	0.0032
	2011	Win	ND		0.013	ND	0.01	0.02	ND	ND	ND	0.101		ND	0.014	ND
		Spr	ND		0.016	ND	0.01	0.03	0.005	ND	ND	0.083		0.002	0.014	0.0002
		Sum	ND		0.017	ND	0.01	0.029	0.032	ND	ND	0.06		ND	0.012	ND
		Fall	ND		0.014	0.003	0.01	0.019	0.01	ND	ND	0.095		ND	0.022	0.0004
	2012	Win	ND		0.024	ND	0.042	0.025	0.009	0.021	ND	0.059		ND	0.023	0.0004
		Spr	ND		0.049	0.008	0.036	1.23	0.077	0.041	0.018	0.132		ND	0.023	0.0007
		Sum	ND		0.037	ND	0.01	0.034	0.009	0.008	ND	0.122		ND	0.011	0.0002
		Fall	ND		0.01	0.01	0.01	0.04	0.011	0.01	0.01	0.088		0.01	0.01	0.001
	2013	Win	ND		ND	ND	0.018	0.049	0.005	0.006	ND	0.099		0.002	0.01	ND
		Spr	ND		0.007	0.01	0.005	0.059	0.001	0.003	0.01	0.057		0.005	0.013	ND
		Sum	ND		ND	0.005	0.005	0.045	0.005	0.005	0.005	0.07		0.005	0.009	0.0005
Fall		ND		ND	ND	0.002	0.036	0.002	0.004	0.002	0.07		0.003	0.008	ND	
14	Win	ND		ND	0.004	0.006	0.024	0.003	0.004	ND	0.067		0.024	0.009	ND	
	Spr	ND		ND	ND	0.001	0.023	ND	0.023	ND	0.082		0.002	0.011	ND	
ND Value		0.0045	0	0.005	0.0003	0.001	0	0.001	0.001	0.001	0.02	0	0.001	0.001	0.0001	
Max		0.0045	0	0.049	0.01	0.042	1.23	0.077	0.08	0.018	0.132	0	0.024	0.023	0.0032	
A RP?		YES	No	No	YES	No	YES	No	No	YES	No	No	No	YES	No	
C RP?		YES	No	No	YES	YES	YES	No	No	No	No	No	No	YES	YES	

RP Procedure Output	Outfall Number:		001		Data Units		mg/L	
Parameter	Cadmium		Chromium (Total)		Mercury		Cyanide (Total)	
Distribution	Delta-Lognormal		Delta-Lognormal		Delta-Lognormal		Modified Delta-Lognormal	
Reporting Limit	0.0003		0.001		0.0001		0.005	
Significant Figures	3		3		3		3	
Maximum Reported Effluent Conc.	0.0003		0.0059		0.0002		0.0200	
Coefficient of Variation (CV)	#NUM!		0.215		0.563		0.383	
Projected Maximum Effluent Conc. (MEC)	0.0003		0.0066		0.0002		0.0212	
Acute Criterion	0.0058		0.01640		0.0025		0.0225	
Chronic Criterion	0.0005		0.01150		0.000012		0.0053	
Confidence Interval	95	99	95	99	95	99	95	99
RP Multiplier	1	1	1.12	0.934	0.845	1.33	1.06	1.48
RP for Acute?	NO	NO	NO	NO	NO	NO	NO	YES
RP for Chronic?	NO	NO	NO	NO	YES	YES	YES	YES
Outcome	C		C		B		B	

RP Procedure Output	Outfall Number:		001		Data Units		mg/L	
Parameter	Copper		Silver		Selenium			
Distribution	Lognormal		Delta-Lognormal		Delta-Lognormal			
Reporting Limit	0.001		0.001		0.001			
Significant Figures	3		3		3			
Maximum Reported Effluent Conc.	0.02694		0.001		0.00397			
Coefficient of Variation (CV)	0.533		#NUM		0.379			
Projected Maximum Effluent Conc. (MEC)	0.02694		0.001		0.00397			
Acute Criterion	0.0376		0.0206		0.0189			
Chronic Criterion	0.0233		N/A		0.0048			
Confidence Interval	95	99	95	99	95	99		
RP Multiplier	1	1.32	1	1	1	1.22		
RP for Acute?	NO	NO	NO	NO	NO	NO		
RP for Chronic?	YES	YES	N/A	N/A	NO	YES		
Outcome	A		C		B			

Cyanide RP Results

RP Procedure Output	Mill Creek							
			Effluent Data					
Facility Name:	Central Valley		#		#		#	
Permit Number:	UT 0024392		1	0.019992	41	0	81	0
Outfall Number:	001		2	0.019992	42	0	82	0
Parameter	Cyanide (Total)		3	0.019992	43	0	83	0
Distribution	Modified Delta-Lognormal		4	0.019992	44	0	84	0
Data Units	mg/L		5	0.019992	45	0	85	0
Reporting Limit	0.005		6	0.019992	46	0	86	0
Significant Figures	3		7	0.019992	47	0	87	0
Confidence Interval	95		8	0.019992	48	0	88	0
			9	0.019992	49	0	89	0
Maximum Reported Effluent Conc.	0.0199917	mg/L	10	0.019992	50	0	90	0
Coefficient of Variation (CV)	0.383		11	0.019992	51	0	91	0
RP Multiplier	1.06		12	0.019992	52	0	92	0
Projected Maximum Effluent Conc. (MEC)	0.0212	mg/L	13	0.019992	53	0	93	0
			14	0.019992	54	0	94	0
Acute Criterion	0.0225	0	15	0.019992	55	0	95	0
Chronic Criterion	0.0053	0	16	0.019992	56	0	96	0
Human Health Criterion	0	0	17	0.019992	57	0	97	0
			18	0.019992	58	0	98	0
RP for Acute?	YES		19	0.019992	59	0	99	0
RP for Chronic?	YES		20	0.019992	60	0	100	0
RP for Human Health?	N/A		21	0.019992	61	0	101	0
			22	0.019992	62	0	102	0
			23	0.005000	63	0	103	0
			24	0.019992	64	0	104	0
			25	0.005007	65	0	105	0
			26	0.005007	66	0	106	0
			27	0.005000	67	0	107	0
			28	0	68	0	108	0
			29	0	69	0	109	0
			30	0	70	0	110	0
			31	0	71	0	111	0
			32	0	72	0	112	0
			33	0	73	0	113	0
			34	0	74	0	114	0
			35	0	75	0	115	0
			36	0	76	0	116	0
			37	0	77	0	117	0
			38	0	78	0	118	0
			39	0	79	0	119	0
			40	0	80	0	120	0

Cadmium RP Results

RP Procedure Output	Mill Creek							
			Effluent Data					
Facility Name:	Central Valley		#		#		#	
Permit Number:	UT 0024392		1	0.0003	41	0.0003	81	0.0003
Outfall Number:	001		2	0.0003	42	0.0003	82	0.0003
Parameter	Cadmium		3	0.0003	43	0.0003	83	0.0003
Distribution	Delta-Lognormal		4	0.0003	44	0.0003	84	0.0003
Data Units	mg/L		5	0.0003	45	0.0003	85	0.0003
Reporting Limit	0.0003		6	0.0003	46	0.0003	86	0.0003
Significant Figures	3		7	0.0003	47	0.0003	87	0.0003
Confidence Interval	99		8	0.0003	48	0.0003	88	0.0003
			9	0.0003	49	0.0003	89	0.0003
Maximum Reported Effluent Conc.	0.0003	mg/L	10	0.0003	50	0.0003	90	0.0003
Coefficient of Variation (CV)	#NUM!		11	0.0003	51	0.0003	91	0.0003
RP Multiplier	1.00		12	0.0003	52	0.0003	92	0
Projected Maximum Effluent Conc. (MEC)	0.0003	mg/L	13	0.0003	53	0.0003	93	0
			14	0.0003	54	0.0003	94	0
Acute Criterion	0.0058	0	15	0.0003	55	0.0003	95	0
Chronic Criterion	0.0005	0	16	0.0003	56	0.0003	96	0
Human Health Criterion	0	0	17	0.0003	57	0.0003	97	0
			18	0.0003	58	0.0003	98	0
RP for Acute?	NO		19	0.0003	59	0.0003	99	0
RP for Chronic?	NO		20	0.0003	60	0.0003	100	0
RP for Human Health?	N/A		21	0.0003	61	0.0003	101	0
			22	0.0003	62	0.0003	102	0
			23	0.0003	63	0.0003	103	0
			24	0.0003	64	0.0003	104	0
			25	0.0003	65	0.0003	105	0
			26	0.0003	66	0.0003	106	0
			27	0.0003	67	0.0003	107	0
			28	0.0003	68	0.0003	108	0
			29	0.0003	69	0.0003	109	0
			30	0.0003	70	0.0003	110	0
			31	0.0003	71	0.0003	111	0
			32	0.0003	72	0.0003	112	0
			33	0.0003	73	0.0003	113	0
			34	0.0003	74	0.0003	114	0
			35	0.0003	75	0.0003	115	0
			36	0.0003	76	0.0003	116	0
			37	0.0003	77	0.0003	117	0
			38	0.0003	78	0.0003	118	0
			39	0.0003	79	0.0003	119	0
			40	0.0003	80	0.0003	120	0

Chromium RP Results

RP Procedure Output	Mill Creek							
			Effluent Data					
Facility Name:	Central Valley		1	0.001	41	0.001	81	0.001
Permit Number:	UT0024392		2	0.001	42	0.001	82	0.001
Outfall Number:	001		3	0.001	43	0.001	83	0.001
Parameter	Chromium (Total)		4	0.001	44	0.001	84	0.001
Distribution	Delta-Lognormal		5	0.001	45	0.001	85	0.001
Data Units	mg/L		6	0.001	46	0.001	86	0.001
Reporting Limit	0.001		7	0.001	47	0.001	87	0.001
Significant Figures	3		8	0.001	48	0.001	88	0.001
Confidence Interval	99		9	0.001	49	0.001	89	0.001
			10	0.001	50	0.001	90	0.001
Maximum Reported Effluent Conc.	0.005882962	mg/L	11	0.001	51	0.001	91	0.001
Coefficient of Variation (CV)	0.215		12	0.001	52	0.001	92	0.001
RP Multiplier	1.12		13	0.005882962	53	0.001	93	0.001
Projected Maximum Effluent Conc. (MEC)	0.00661	mg/L	14	0.001	54	0.001	94	0.001
			15	0.001	55	0.001	95	0.001
Acute Criterion	0.0164	0	16	0.001	56	0.001	96	0.001
Chronic Criterion	0.0115	0	17	0.001	57	0.001	97	0.001
Human Health Criterion	0	0	18	0.001	58	0.001	98	0.001
			19	0.001	59	0.001	99	0.001
RP for Acute?	NO		20	0.001	60	0.001	100	0.001
RP for Chronic?	NO		21	0.001	61	0.001	101	0.001
RP for Human Health?	N/A		22	0.001	62	0.001	102	0.001
			23	0.001	63	0.001	103	0.001
			24	0.001	64	0.001	104	0.001
			25	0.001	65	0.001	105	0.001
			26	0.001	66	0.001	106	0.001
			27	0.001	67	0.001	107	0.001
			28	0.001	68	0.001	108	0.001
			29	0.001	69	0.001	109	0.001
			30	0.001	70	0.004051851	110	0.001
			31	0.001	71	0.001	111	0.001
			32	0.001	72	0.001	112	0.001
			33	0.001	73	0.001	113	0.001
			34	0.001	74	0.001	114	0.001
			35	0.001	75	0.001915555	115	0.001
			36	0.001	76	0.001	116	0.001
			37	0.001	77	0.001	117	0.001
			38	0.001	78	0.001	118	0.001
			39	0.001	79	0.001	119	0.001
			40	0.001	80	0.001	120	0.001

Copper RP Results

RP Procedure Output	Mill Creek							
			Effluent Data					
Facility Name:	Central Valley		#		#		#	
Permit Number:	UT 0024392		1	0.01901	41	0.01199	81	0.01595
Outfall Number:	001		2	0.02389	42	0.01504	82	0.00985
Parameter	Copper		3	0.00893	43	0.00893	83	0.01901
Distribution	Lognormal		4	0.00802	44	0.00710	84	0.00802
Data Units	mg/L		5	0.01595	45	0.01504	85	0.01504
Reporting Limit	0.001		6	0.00893	46	0.01992	86	0.01290
Significant Figures	3		7	0.01595	47	0.01595	87	0.01504
Confidence Interval	95		8	0.00893	48	0.01595	88	0.01290
			9	0.01412	49	0.01199	89	0.01412
Maximum Reported Effluent Conc.	0.026940733	mg/L	10	0.01290	50	0.01199	90	0.01290
Coefficient of Variation (CV)	0.533		11	0.01504	51	0.01504	91	0.01107
RP Multiplier	1		12	0.01412	52	0.00893	92	0.01290
Projected Maximum Effluent Conc. (MEC)	0.02694	mg/L	13	0.01992	53	0.01290	93	0.01504
			14	0.01992	54	0.01100	94	0.01107
Acute Criterion	0.0376		15	0.01290	55	0.01290	95	0.01504
Chronic Criterion	0.0233		16	0.01199	56	0.00893	96	0.01901
Human Health Criterion	0		17	0.01290	57	0.00985	97	0.01290
			18	0.01412	58	0.01199	98	0.01504
RP for Acute?	NO		19	0.01199	59	0.01412	99	0.00710
RP for Chronic?	YES		20	0.02297	60	0.01290	100	0.00710
RP for Human Health?	N/A		21	0.01412	61	0.01107	101	0.00710
			22	0.00985	62	0.01412	102	0.00710
Confidence Interval	99		23	0.01809	63	0.01412	103	0.00802
			24	0.01199	64	0.10690	104	0.01199
Maximum Reported Effluent Conc.	0.026940733	mg/L	25	0.01504	65	0.01412	105	0.01901
Coefficient of Variation (CV)	0.533		26	0.00985	66	0.00802	106	0.01687
RP Multiplier	1.32		27	0.01504	67	0.01992	107	0.01504
Projected Maximum Effluent Conc. (MEC)	0.0354	mg/L	28	0.01504	68	0.01687	108	0.01199
			29	0.01412	69	0.01412	109	0.00985
Acute Criterion	0.0376		30	0.00985	70	0.02389	110	0.01809
Chronic Criterion	0.0233		31	0.01901	71	0.01595	111	0.01687
Human Health Criterion	0		32	0.01199	72	0.01290	112	0.01107
			33	0.01504	73	0.01290	113	0.01809
RP for Acute?	NO		34	0.01412	74	0.00100	114	0.02694
RP for Chronic?	YES		35	0.01595	75	0.00100	115	0.01901
RP for Human Health?	N/A		36	0.01199	76	0.01504	116	0.00985
			37	0.00893	77	0.01290	117	0.02114
ProUCL was run on the data set			38	0.01290	78	0.01199	118	0.01412
Outliers removed:			39	0.01107	79	0.02114	119	0.01901
15-Dec-14	0.106899224		40	0.00802	80	0.01290	120	0.01595

Silver RP Results

	Mill Creek							
Facility Name:	Central Valley		Effluent Data					
Permit Number:	UT 0024392		#		#		#	
Outfall Number:	001		1	0.0010	41	0.0010	81	0.0010
Parameter	Silver		2	0.0010	42	0.0010	82	0.0010
Distribution	Delta-Lognormal		3	0.0010	43	0.0010	83	0.0010
Data Units	mg/L		4	0.0010	44	0.0010	84	0.0010
Reporting Limit	0.001		5	0.0010	45	0.0010	85	0.0010
Significant Figures	3		6	0.0010	46	0.0010	86	0.0010
Confidence Interval	95		7	0.0010	47	0.0010	87	0.0010
			8	0.0010	48	0.0010	88	0.0010
Maximum Reported Effluent Conc.	0.001	mg/L	9	0.0010	49	0.0010	89	0.0010
Coefficient of Variation (CV)	#NUM!		10	0.0010	50	0.0010	90	0.0010
RP Multiplier	1.00		11	0.0010	51	0.0010	91	0.0010
Projected Maximum Eff. Conc. (MEC)	0.001	mg/L	12	0.0010	52	0.0010	92	0.0010
			13	0.0010	53	0.0010	93	0.0010
Acute Criterion	0.0206	0	14	0.0010	54	0.0010	94	0.0010
Chronic Criterion	0.0206	0	15	0.0010	55	0.0010	95	0.0010
Human Health Criterion	0	0	16	0.0010	56	0.0010	96	0.0010
			17	0.0010	57	0.0010	97	0.0010
RP for Acute?	NO		18	0.0010	58	0.0010	98	0.0010
RP for Chronic?	N/A		19	0.0010	59	0.0010	99	0.0010
RP for Human Health?	N/A		20	0.0010	60	0.0010	100	0.0010
			21	0.0010	61	0.0010	101	0.0010
Confidence Interval	99		22	0.0010	62	0.0010	102	0.0010
			23	0.0010	63	0.0010	103	0.0010
Maximum Reported Effluent Conc.	0.001		24	0.0010	64	0.0010	104	0.0010
Coefficient of Variation (CV)	#NUM!		25	0.0010	65	0.0010	105	0.0010
RP Multiplier	1.00		26	0.0010	66	0.0010	106	0.0010
Projected Maximum Eff. Conc. (MEC)	0.001		27	0.0010	67	0.0010	107	0.0010
			28	0.0010	68	0.0010	108	0.0010
Acute Criterion	0.0206		29	0.0010	69	0.0010	109	0.0010
Chronic Criterion	0.0206		30	0.0010	70	0.0010	110	0.0010
Human Health Criterion	0		31	0.0010	71	0.0010	111	0.0010
			32	0.0010	72	0.0010	112	0.0010
RP for Acute?	NO		33	0.0010	73	0.0010	113	0.0010
RP for Chronic?	N/A		34	0.0010	74	0.0010	114	0.0010
RP for Human Health?	N/A		35	0.0010	75	0.0010	115	0.0010
			36	0.0010	76	0.0010	116	0.0010
			37	0.0010	77	0.0010	117	0.0010
			38	0.0010	78	0.0010	118	0.0010
			39	0.0010	79	0.0010	119	0.0010
			40	0.0010	80	0.0010	120	0.0010

Selenium RP Results

	Mill Creek							
Facility Name:	Central Valley		Effluent Data					
Permit Number:	UT 0024392		#		#		#	
Outfall Number:	001		1	0.00100	41	0.00214	81	0.00092
Parameter	Selenium		2	0.00092	42	0.00092	82	0.00092
Distribution	Delta-Lognormal		3	0.00092	43	0.00214	83	0.00092
Data Units	mg/L		4	0.00092	44	0.00092	84	0.00214
Reporting Limit	0.001		5	0.00092	45	0.00092	85	0.00092
Significant Figures	3		6	0.00092	46	0.00092	86	0.00092
Confidence Interval	95		7	0.00214	47	0.00092	87	0.00092
			8	0.00092	48	0.00092	88	0.00092
Maximum Reported Effluent Conc.	0.0039674	mg/L	9	0.00092	49	0.00305	89	0.00092
Coefficient of Variation (CV)	0.379		10	0.00092	50	0.00397	90	0.00214
RP Multiplier	1		11	0.00214	51	0.00092	91	0.00214
Projected Maximum Effluent Conc. (MEC)	0.00396	mg/L	12	0.00092	52	0.00092	92	0.00214
			13	0.00092	53	0.00092	93	0.00092
Acute Criterion	0.0189	0	14	0.00092	54	0.00092	94	0.00214
Chronic Criterion	0.0048	0	15	0.00092	55	0.00092	95	0.00092
Human Health Criterion	0	0	16	0.00092	56	0.00092	96	0.00214
			17	0.00092	57	0.00092	97	0.00214
RP for Acute?	NO		18	0.00092	58	0.00092	98	0.00092
RP for Chronic?	NO		19	0.00214	59	0.00092	99	0.00092
RP for Human Health?	N/A		20	0.00214	60	0.00092	100	0.00092
			21	0.00214	61	0.00092	101	0.00092
Confidence Interval	99		22	0.00092	62	0.00092	102	0.00092
Maximum Reported Effluent Conc.	0.0039674	mg/L	23	0.00092	63	0.00214	103	0.00092
Coefficient of Variation (CV)	0.379		24	0.00092	64	0.00092	104	0.00092
RP Multiplier	1.22		25	0.00092	65	0.00092	105	0.00092
Projected Maximum Effluent Conc. (MEC)	0.00485	mg/L	26	0.00092	66	0.00092	106	0.00214
			27	0.00092	67	0.00092	107	0.00214
Acute Criterion	0.0189	0	28	0.00092	68	0.00092	108	0.00092
Chronic Criterion	0.0048	0	29	0.00092	69	0.00092	109	0.00092
Human Health Criterion	0	0	30	0.00092	70	0.00092	110	0.00092
			31	0.00092	71	0.00092	111	0.00214
RP for Acute?	NO		32	0.00214	72	0.00092	112	0.00092
RP for Chronic?	YES		33	0.00214	73	0.00092	113	0.00092
RP for Human Health?	N/A		34	0.00092	74	0.00092	114	0.00092
			35	0.00092	75	0.00092	115	0.00092
ProUCL was run on the data set			36	0.00092	76	0.00100	116	0.00214
			37	0.00092	77	0.00092	117	0.00214
Outliers removed:			38	0.00092	78	0.00092	118	0.00092
3/18/2014	0.0241096		39	0.00092	79	0.00092	119	0.00092
			40	0.00092	80	0.00092	120	0.00214

Mercury RP Results

RP Procedure Output	Mill Creek							
			Effluent Data					
Facility Name:	Central Valley		#		#		#	
Permit Number:	UT 0024392		1	0.00010	41	0.00010	81	0.00010
Outfall Number:	001		2	0.00010	42	0.00010	82	0.00010
Parameter	Mercury		3	0.00010	43	0.00010	83	0.00010
Distribution	Delta-Lognormal		4	0.00010	44	0.00010	84	0.00010
Data Units	mg/L		5	0.00020	45	0.00010	85	0.00010
Reporting Limit	0.0001		6	0.00010	46	0.00010	86	0.00010
Significant Figures	3		7	0.00010	47	0.00010	87	0.00010
Confidence Interval	95		8	0.00010	48	0.00010	88	0.00010
			9	0.00010	49	0.00010	89	0.00010
Maximum Reported Effluent Conc.	0.000200711	mg/L	10	0.00010	50	0.00010	90	0.00010
Coefficient of Variation (CV)	0.563		11	0.00010	51	0.00010	91	0.00010
RP Multiplier	0.845		12	0.00010	52	0.00010	92	0.00010
Projected Maximum Effluent Conc. (MEC)	0.00017	mg/L	13	0.00010	53	0.00010	93	0.00010
			14	0.00010	54	0.00010	94	0.00010
Acute Criterion	0.0025	0	15	0.00010	55	0.00010	95	0.00010
Chronic Criterion	0.000012	0	16	0.00010	56	0.00010	96	0.00010
Human Health Criterion	0	0	17	0.00010	57	0.00010	97	0.00010
			18	0.00010	58	0.00010	98	0.00010
RP for Acute?	NO		19	0.00010	59	0.00010	99	0.00000
RP for Chronic?	YES		20	0.00010	60	0.00010	100	0.00010
RP for Human Health?	N/A		21	0.00010	61	0.00010	101	0.00010
			22	0.00010	62	0.00010	102	0.00010
			23	0.00010	63	0.00010	103	0.00010
			24	0.00010	64	0.00010	104	0.00010
			25	0.00010	65	0.00010	105	0.00010
			26	0.00010	66	0.00010	106	0.00010
			27	0.00010	67	0.00010	107	0.00010
			28	0.00010	68	0.00010	108	0.00010
			29	0.00010	69	0.00010	109	0.00010
			30	0.00010	70	0.00010	110	0.00010
			31	0.00010	71	0.00010	111	0.00010
			32	0.00010	72	0.00010	112	0.00010
			33	0.00010	73	0.00010	113	0.00010
			34	0.00010	74	0.00010	114	0.00010
			35	0.00000	75	0.00010	115	0.00010
			36	0.00010	76	0.00010	116	0.00010
			37	0.00010	77	0.00010	117	0.00010
			38	0.00010	78	0.00000	118	0.00010
			39	0.00010	79	0.00010	119	0.00010
			40	0.00010	80	0.00010	120	0.00010